Chapter 4

Organization and Mission of the TSC and the HHC Theater Signal Brigade

This chapter discusses the mission and organization of the TSC and its subordinate units. There is no definite force structure for the TSC. Its composition is established by theater specific requirements based on the CINC's understanding of METT-TC. This chapter also discusses the mission and organization of units that can comprise the signal assets needed to support a theater of operation.

THEATER SIGNAL COMMAND, TOE 11602L000

4-1. The TSC consists of all operational and strategic level signal organizations within the AOR supporting the ASCC. These organizations may include—

- Two to five EAC signal brigades.
- One strategic signal brigade.
- One combat camera (COMCAM) company.
- One theater signal maintenance company.
- One or more reproduction detachments.

4-2. The actual number of EAC signal brigades and the number and type of their subordinate signal units deployed to the theater of operation depend on the METT-TC. Figure 4-1 shows the organization of a TSC.

4-3. The TSC plans, engineers, and manages the Army's portion of the TCS and provides the G6 staff to the ASCC. The TSC is an MSC of the USASC and is under the OPCON of the ASCC.

4-4. The TCS must be flexible and responsive to operational changes if the necessary C2 systems are to be available at the right time and place. C2 tools, such as information systems and VTC capabilities, have become increasingly important to the JTF and ASCC commanders. Complex systems such as these require that the TSC's early entry module be in the theater early to ensure the commander's C2 requirements are met in the very fluid deployment and entry phase of the operation.
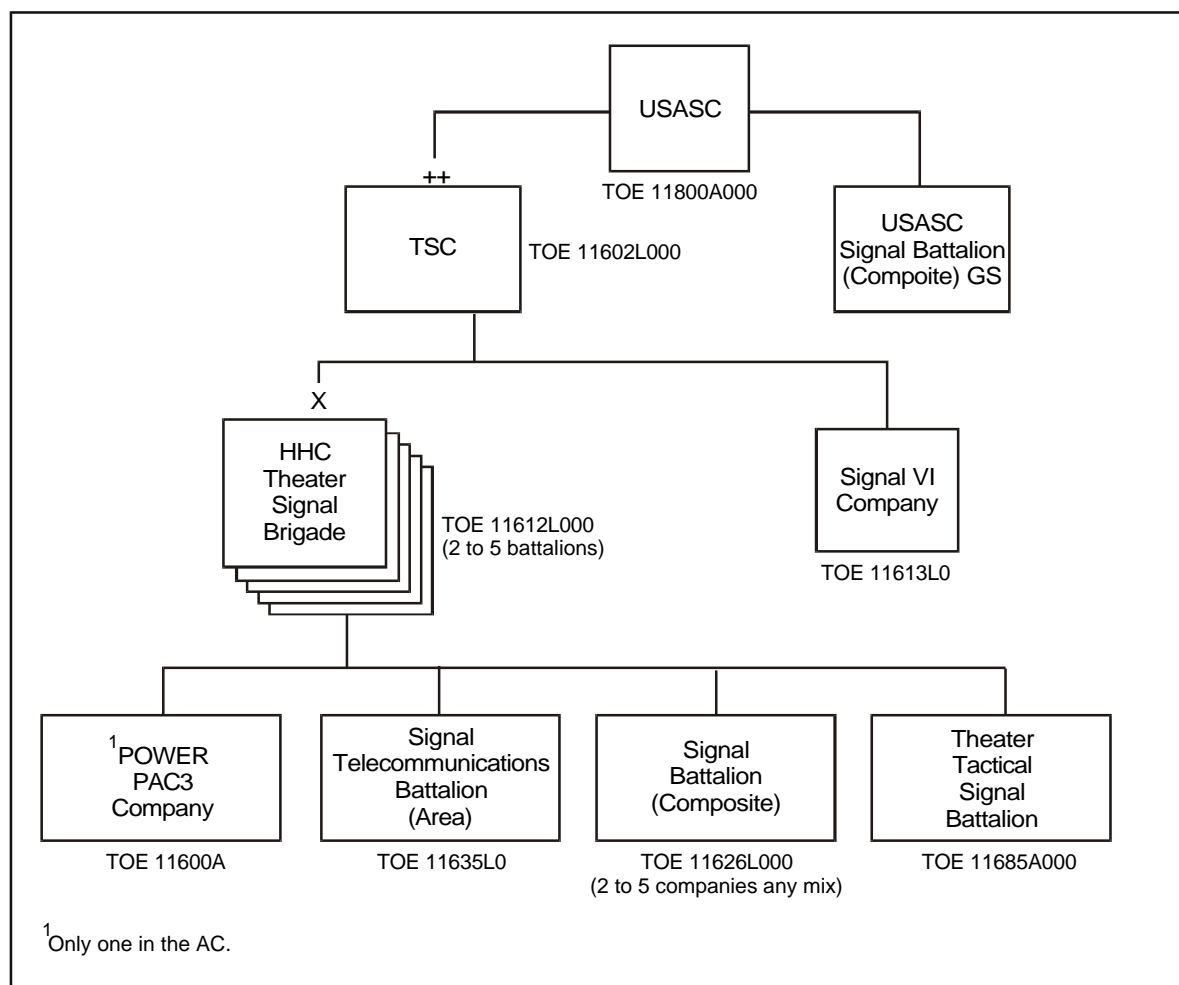
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                                    │    USASC     │
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              ┌──────────────┐                          ┌──────────────┐
              │     TSC      │  TOE 11602L000           │    USASC     │
              └──────┬───────┘                          │Signal Battalion│
                     │                                  │(Compoite) GS │
            ┌────────┴──────┐                           └──────────────┘
          X
    ┌──────────────┐                              ┌──────────────┐
    │     HHC      │                              │  Signal VI   │
    │   Theater    │                              │   Company    │
    │    Signal    │  TOE 11612L000               │              │
    │   Brigade    │  (2 to 5 battalions)         └──────────────┘
    └──────┬───────┘                               TOE 11613L0
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Figure 4-1. Organization of the TSC

(POWER PAC3 Company — TOE 11600A) (Signal Telecommunications Battalion (Area) — TOE 11635L0) (Signal Battalion (Composite) — TOE 11626L000, 2 to 5 companies any mix) (Theater Tactical Signal Battalion — TOE 11685A000)

[1] Only one in the AC.

4-5. Immediately on the start of contingency operations, the TSC will furnish an early entry module composed of engineers, planners, and operators. Their mission is to plan, engineer, and manage the EAC TCS architecture by coordinating and interacting with the operational planners as they respond to their commander's changing intent and objectives.

4-6. Recent military operations have demonstrated the requirement for timely follow-on deployment of the remaining C2, planning, and engineering capabilities inherent in a TSC, even when there is one or no deployed EAC signal brigades OPCON to the TSC.

4-7. Two types of EAC signal brigades aligned under the TSC that provide global connectivity are–

- **Strategic signal brigades**. Located in certain theaters and are responsible for fixed, strategic communications support to the warfighter. During peace, each strategic signal brigade is doctrinally under the C2 of the USASC. During MTW or MOOTW, each brigade becomes OPCON to the TSC.

- **Theater signal brigades**. Deployed to provide mobile, tactical communications support to the ASCC, as required. Upon deployment, the TSC commands each brigade. The mission of this unit is to provide C2 to assigned and attached signal units, and to install, operate, and maintain assigned portions of the TCS as directed by the TSC.

4-8. The TSC provides centralized management and engineering of the entire theater data network. The TSC directs and coordinates local area networks (LANs) as they are connected to the WAN. This includes configuration of databases and domain name servers, to include data network and electronic mail (e-mail) addressing and routing. Figure 4-2 reflects the type of units that the TSC would support.

Figure 4-2. EAC Units Requiring Signal Support

HHC TSC, TOE 11602L000

4-9. The following paragraphs describe the tasking, mission, and capabilities of the HHC TSC.

4-10. The tasking of the HHC TSC varies due to the military operation or situation. In some cases, the CINC may task the HHC TSC to provide overall signal C2, direction, and guidance to a JTF, or apportion elements of the signal mission to the TSC.

4-11. HHC TSC's mission is to–

- Provide C2 and supervision for units assigned and attached to the TSC.

- Formulate and implement plans, policies, and procedures for the engineering, installation, operation, and management of assigned portions of the TCS.

- Provide management of the TCS, to include centralized management of voice, data, messaging, and VTC capabilities.

- Provide communications planning and management of special purpose communications/information systems.

- Provide internal signal support to the ASCC Headquarters through the DCSIM staff section.

- Provide intelligence and security support and oversight to subordinate commands.

- Provide ASCC information assurance and protection planning and management for the theater communications system, and to support the protect, detect, and react strategies of the Army as directed by the ASCC G-6.

- Execute protection of Army networks in conjunction with collated RCERT.

- Provide the Army's portion to the JCCC, when established.

- Establish the JCCC, with augmentation from other services, when tasked.

4-12. The TSC–

- Plans, engineers, and manages signal support systems installed by the TSC, and network interface with systems installed by other units, to include joint, combined, and allied.

- Formulates and implements signal support plans, policies, and procedures for the ASCC. Provides staff management of the TCS, to include theater operational COMSEC and information assurance and protection.

- Provides OPCON over the theater COMSEC Logistics Support Center and other facilities that provide GS/specialized repair activity (SRA). Backs up direct support (DS) COMSEC maintenance and supply in those theaters where TAACOM TSC does not perform the function.

- Provides battlefield spectrum management (BSM) to include allocation, assignment, and control of radio frequencies for Army,

joint, and coalition elements throughout the theater in coordination with HN agencies, if so tasked.

- Provides communications engineering support and coordination of requirements for special-purpose communications/information systems.

- Provides planning and staff management of the ground mobile forces (GMF)/TACSAT Theater Satellite Communications Monitoring Center and Army GMF in the theater of operations.

- Provides planning and coordination of TSC's transportation requirements.

- Provides planning, staff supervision, and implementation of the public affairs program and command information programs for the TSC.

- Provides staff management and coordination of battlefield information systems (BISs), recommending policy, procedures, standards, and convention. BIS are files and forms management, classified document control, Freedom of Information Act (FOIA), Privacy Act, official mail, and distribution.

- Provides staff supervision of all personnel and administrative matters of planning, developing, and implementing command policies for personnel management and human affairs programs; centralized personnel records management and human affairs programs; and centralized personnel records management within the TSC.

- Provides staff supervision, investigation, inquiries, surveys, studies, and reports of inspector general matters within the TSC.

- Provides staff supervision of comptroller matters of management consultant services, management surveys, and programming, budgeting, and controlling funds within the TSC.

- Provides coordination of operations and planning and evaluates and prepares reports of NBC activities throughout the TSC.

- Provides coordination of engineering support facilities supporting the TSC.

- Assists in the coordinated defense of the unit's area or installation.

- Performs unit maintenance on organic equipment.

- Provides management and coordination of volume reproduction units and visual information (VI) units at EAC.

- Provides staff supervision of software management, to include managing all signal software, managing all noncombatant service support software, and advising the command and staff on automation matters.

4-13. The TSC depends on Army units for health, finance, legal, personnel, and administrative services and supplemental transportation, to include aviation for maintenance contact teams and C2. This unit requires that 100 percent of its TOE and supplies be transported in two surface movements, using its authorized organic vehicles and supplemental transport. It depends on the signal telecommunications battalion (area) for signal communications facilities. See Appendix B for further information on this organization.

4-14. The TSC is authorized an additional 70 secure telephones and 100 nonsecure telephones with appropriate associated support items of equipment (ASIOE) to provide service to those organizations who do not provide their own instruments.

SIGNAL VISUAL INFORMATION COMPANY, TOE 11613L0

4-15. The signal VI company's (TA) mission is to provide visual imagery acquisition and exploitation support to satisfy the operational requirement of the ASCC and joint headquarters when required. The unit can assist in the coordinated defense of its area or installation. Figure 4-3 shows the organization of a signal visual information company.
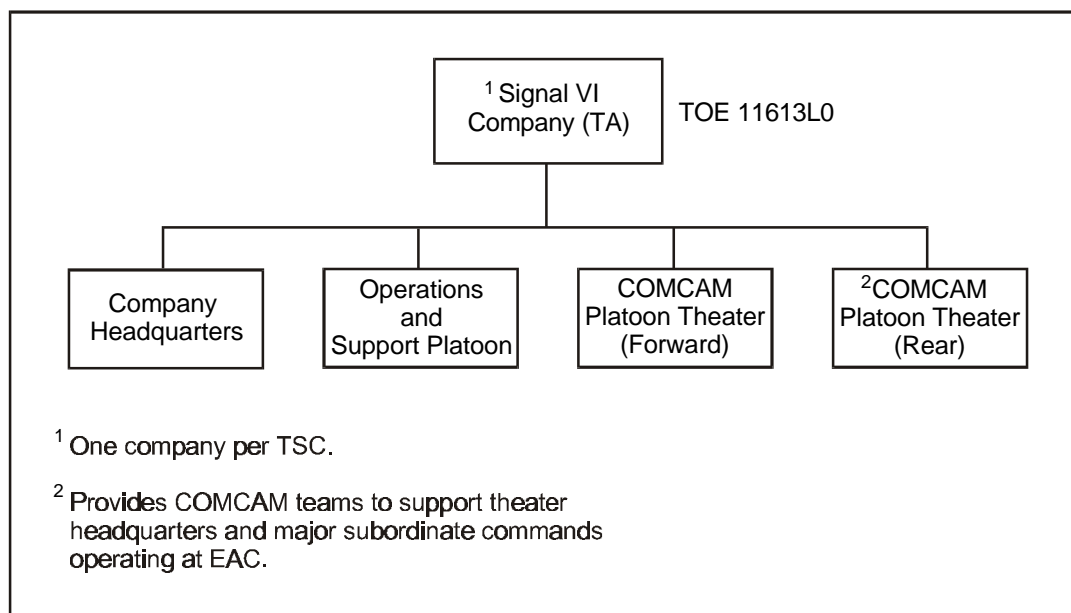
Figure 4-3. Signal VI Company

4-16. Signal VI company (TA) provides–
- Tailored VI products, including graphics, to support operational requirements.
- Historical documentation to support the Army VI documentation program.
- Processing, maintenance, and repair support of VI to ASCC units beyond the capacity of those units.

4-17. This unit depends on the ASCC for health, legal, religious, finance, personnel, and administrative services; transportation; communications; and support for transmission of VI on data capable communication lines across the corps. The TSC provides food service and communications-electronics (CE) maintenance support. See FM 24-40 for further information on this organization.

HHC THEATER SIGNAL BRIGADE, TOE 11612L000

4-18. The EAC HHC theater signal brigade has two to five signal battalions depending on mission and theater requirements. Units assigned to the brigade include one or two POWER PAC3 companies, signal telecommunications battalion (area), theater tactical signal battalion, and signal battalion (composite). The theater signal brigade is modular to allow for the tailoring of a suitable force to accomplish the specific mission.

4-19. This unit provides theater tactical communications support to a theater CINC. It is doctrinally under the C2 of the deployed TSC. If there is not a TSC deployed to the theater, then it is under the C2 of the USASC and OPCON to the deployed ASCC Headquarters.

4-20. Each battalion is tailored to the supported theater. Each brigade can establish up to 12 or 16 area nodes. The organization reflects the planned or expected needs of the COMMZ.

4-21. This unit's mission is to–
- Provide C2 of assigned and attached units.
- Install, operate, and maintain assigned portions of the TCS as directed by the TSC.
- Coordinate the training, administration, and logistical support of assigned units.

4-22. This unit provides–
- Provides staff planning, C2, and supervision of the brigade.
- Coordinates the training, administration, and logistical support of assigned units.
- Performs unit maintenance on organic equipment, except CE equipment.

4-23. This unit depends on Army units for–
- Health, finance, legal, personnel, and administrative support services.
- NBC decontamination.
- Supplemental transportation services, to include aviation support for C2 of dispersed sites.
- Evaluation and replacement of critical equipment.
- CP/relay site reconnaissance, as required.

4-24. This unit also depends on subordinate battalions (signal telecommunications battalion or theater tactical signal battalion) for DS maintenance of signal and COMSEC equipment, food service and signal unit maintenance.

4-25. Each theater signal brigade can directly control up to 16 nodes. Figure 4-4 gives an example of a notional theater signal brigade force structure. See Appendix B for further information on this organization.
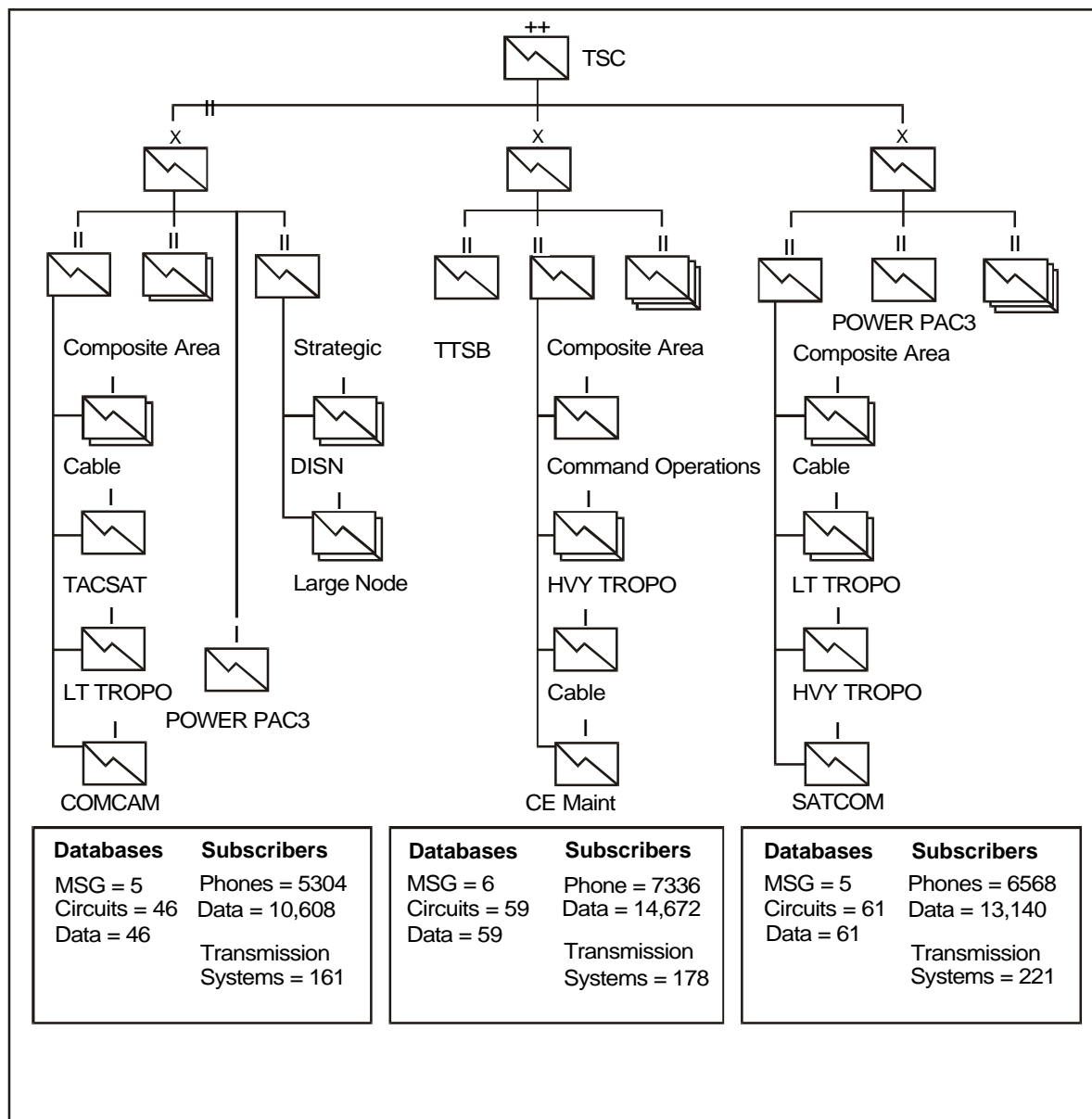

Figure 4-4. Notional Signal Brigade Force Structure

POWER PAC3 COMPANY, TOE 11600A

4-26. The following paragraphs describe the mission and capabilities of the Power PAC3 company (also known as the EAC contingency company). Figure 4-5 shows the unit structure during the intermediate TOE life of the unit. Figure 4-6 shows the objective TOE structure (the desired end-state configuration of the unit after all equipment upgrades have occurred).

(ITOE 11600A - Modular)
4/2/156//162

Company Headquarters 1/0/6//7 — 01	
11606A 2/2/30//34	**11607A** 1/0/42//43 · **11608A** 1/0/30//31
HQ/Contingency Signal Company 1/1/3//5 — 02	Heavy Hub Platoon 1/0/1//2 — 01 · Light Hub Platoon 1/0/1//2 — 01
Motor Maintenance 0/0/13//13 — 03	Multichannel TACSAT 0/0/12//12 — 02 · Multichannel TACSAT 0/0/9//9 — 02
CE/COMSEC 0/1/8//9 — 04	MGV/FSEN 0/0/6//6 — 03 · MGV/FSEN 0/0/6//6 — 03
LNO Teams 0/0/9//9 — 15	Single-Channel TACSAT 0/0/6//6 — 04 · Single-Channel TACSAT 0/0/6//6 — 04
Tri-band AN/GRC-193 AN/VRC-92 PSC-3	LOS Team 0/0/9//9 — 05 · Switch/Cable 0/0/8//8 — 05
11609A 0/0/9//9 Total = 54	Switch/Cable 0/0/8//8 — 06

Figure 4-5. EAC POWER PAC3 Company Intermediate TOE Structure

(OTOE 11600A - Modular)
4/2/156//162

Company Headquarters
1/0/6//7
01

11606A
2/2/30//34

HQ/Contingency
Signal Company
1/1/3//5

Motor
Maintenance
0/0/13//13
03

CE/COMSEC
0/1/8//9
04

LNO Teams
0/0/9//9
15

Tri-band
AN/GRC-193
AN/VRC-92
PSC-3

11609A
0/0/9//9
Total = 54

11607A
1/0/44//45

Heavy Hub Platoon
1/0/1//2

STAR-T
0/0/20//20
02

Future
SEN
0/0/6//6
03

Single-Channel
TACSAT
0/0/6//6
04

LOS
Team
0/0/9//9

Cable Section
0/0/8//8
06

11608A
1/0/28//29

Light Hub Platoon
1/0/1//2

STAR-T
0/0/15//15
02

Future
SEN
0/0/6//6
03

Single-Channel
TACSAT
0/0/6//6
04

Figure 4-6. POWER PAC3 Company Objective TOE Structure

4-27. The POWER PAC3 company's mission is to rapidly deploy and support initial information service requirements of the ASCC. Working in concert with deployed Army mobile liaison teams, the organizations are mutually supportive and can meet the entire gamut of communications/ information needs of the ground component commander until the arrival of the TSC. The

company can extend US strategic communications systems to support of allied forces.

4-28. The POWER PAC3 company is a critical C2 communications provider, which serves to ensure success during power projection operations. The unit is highly mobile and is tailored to any warfighting ground component commander's mission essential communications and information needs.

4-29. The POWER PAC3 company can deploy into a logistically austere theater with little or no communications infrastructure. The unit must sustain itself for up to 45 days; therefore, the operator/maintainer must maximize all equipment.

4-30. This unit provides–

- Command, staff planning, control, and supervision of the operations of the company to include any augmenting of personnel or material assets.
- Vehicular, electronic, and COMSEC maintenance and repair, as well as supply facilities to support company operations.
- Communications network planning and management.

4-31. On ARFOR deployment, POWER PAC3 company's configuration is determined by mission requirements. Generally, the POWER PAC3 company is broken down into three sections: the ARFOR Main CP, ARFOR Forward CP, and six liaison officer (LNO) signal support teams (SSTs). Each section provides a variety of communications capabilities for the headquarters it supports. Assets from the LNO teams could extend the theater information infrastructure to support other or additional support missions. Figure 4-7 shows the POWER PAC3 company's AOR support requirements.
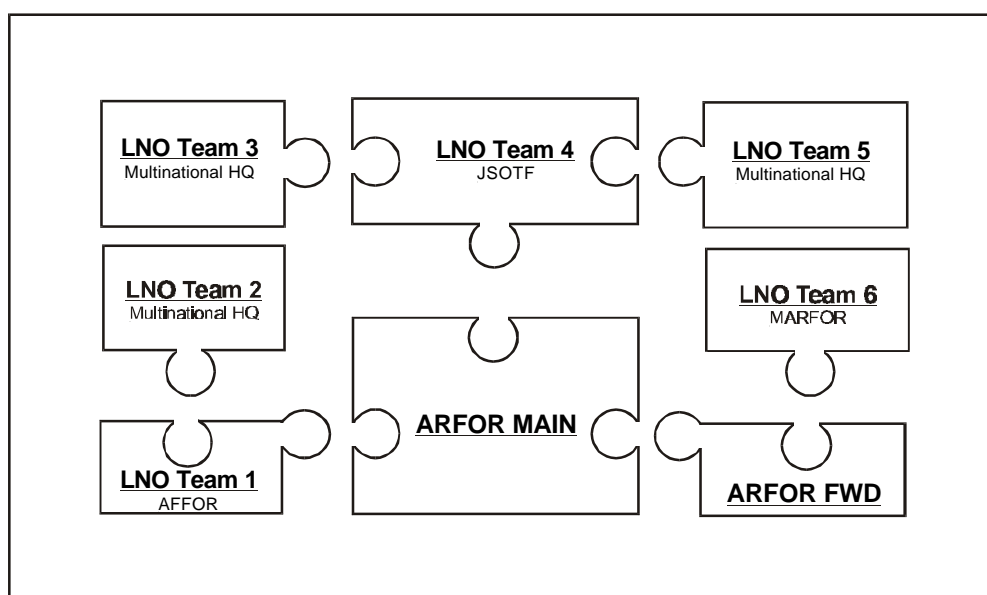
Figure 4-7. POWER PAC3 Company's AOR Support Requirements

4-32. The POWER PAC3 company depends on the TSC for health, religious, finance, personnel, administration, petroleum, oils, and lubricants (POL), ammunition, and food services. Army aviation units provide intertheater supplemental air transportation. The company is a modular organization that has a headquarters/contingency company with an LNO team, a heavy hub platoon, and a light hub platoon.

Headquarters/Contingency Company, TOE 11606A000

4-33. The headquarters/contingency company has a company headquarters section, network management section, motor maintenance section, CE/COMSEC maintenance section, and LNO team.

4-34. This company is responsible for the C2, management, network engineering, maintenance, supervision, and support of company personnel to include LNO SSTs and any augmentation assets.

4-35. The contingency company engineers the installation of the communications systems required for the ARFOR, supervises and manages the operation of the network, and resolves technical problems.

LNO Team, TOE 11609A000

4-36. The LNO team has six SSTs. Each SST has a super high frequency (SHF) tri-band advanced range extension terminal (STAR-T) team and a retransmission/single-channel TACSAT team. The SST is assigned to an Army LNO team and attached to a designated joint, coalition, or allied headquarters.

4-37. The POWER PAC3 company's LNO signal support team installs, operates, and maintains communications equipment and provides information services to the liaison team. This is done by SATCOM, digital voice switching, and commercial and HN communications access. Each LNO SST is tailored to mission requirements and has a standardized integrated CP shelter.

4-38. Each team has the necessary equipment assigned to them for direct communications back to ARFOR Main CP and/or ARFOR Forward CP. A typical support package provides 32 local secure terminal connections, one local LAN loop, and connectivity to two extended LANs via X.25 ports which support access to the tactical packet network (TPN). For full-scale POWER PAC3 company deployment, these SSTs should provide full information services to 16 subscribers per site.

4-39. This unit is authorized an additional 12 secure telephones and 48 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.

Heavy Hub Platoon, TOE 11607A000

4-40. The heavy hub platoon has a STAR-T section, retransmission/single-channel TACSAT section, line-of-sight (LOS) radio section, future small extension node (SEN) section, and cable and wire section. This platoon is responsible for the following information services (secure and nonsecure) at the ARFOR Main CP:

- Digital voice switching.
- Commercial and HN communications access.
- LOS multichannel radio.
- SATCOM.
- Cable and wire operations and message processing.
- NIPIRNET (e-mail) access.

4-41. A typical support package provides 128 local secure terminal connections, four local LAN loops, and connectivity to eight extended LANs via X.25 ports which support access to the TPN.

4-42. This unit is authorized an additional 70 secure telephones and 222 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.

Light Hub Platoon, TOE 11608A000

4-43. The light hub platoon has a STAR-T section, retransmission/single-channel TACSAT section, and future SEN section. This platoon installs, operates, and maintains communications equipment at ARFOR Forward CP and provides information services (secure and nonsecure) to include message processing and NIPIRNET (e-mail) access. This is done through SATCOM, cable and wire operations, digital voice switching, and commercial and HN communications.

4-44. A typical support package provides 96 local secure terminal connections, three local LAN loops, and connectivity to six extended LANs via X.25 ports which support access to the TPN.

4-45. This unit is authorized an additional 70 secure telephones and 222 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.

POWER PAC3 Company Capabilities

4-46. **Combat Net Radio (CNR).** Secure single-channel TACSAT provides an unlimited range for contingency deployment en route communications, in-theater communications, mobile operations, intelligence broadcast, and CNR users. The ARFOR Main CP, ARFOR Forward CP, and each LNO team have single-channel TACSAT terminals.

4-47. Commercial single-channel TACSAT provides worldwide voice and data access at low- to medium-data rates. The ARFOR Main CP, ARFOR Forward CP, and each LNO team have commercial terminals.

4-48. Improved high-frequency radio (IHFR) systems provide long-haul secure voice and limited low-rate data. Its primary mission is to provide

redundant internal C2 and engineering between geographically dispersed signal teams. IHFR is located at the ARFOR Main CP, ARFOR Forward CP, and each LNO team location.

4-49. Secure frequency modulated (FM) radio/Single-Channel Ground and Airborne Radio System (SINCGARS) is located at the ARFOR Main CP, ARFOR Forward CP, and each LNO team location.

4-50. **Multichannel Communications**. The STAR-T provides multichannel communications connectivity internal to the theater and external between the theater and sustaining base. The transponder-based satellite system operates in the X (DSCS), C, and Ku (commercial) SHF bands. The ARFOR Main CP, ARFOR Forward CP, and each LNO team have STAR-T terminals. The STAR-T has an integrated switching capability, supports local subscribers, terminates digital trunk groups (DTGs) from LOS terminals and other STAR-Ts.

4-51. The AN/TSC-143, (tri-band) terminal is the prototype STAR-T and will be fielded as an interim solution. It has embedded switching which functions as both tandem and private branch exchange (PBX). It will replace the current AN/TTC-39 and AN/TTC-48 switches and the AN/TSC-85 and AN/TSC-93 satellite terminals.

4-52. The STAR-T will replace the currently fielded multichannel TACSAT assets. During the transition, the STAR-T interoperates with the AN/TSC-85 and AN/TSC-93 SATCOM terminals. These terminals provide low-, medium-, and high-capacity multiplexed data and voice circuits and can be used in point-to-point, hub-spoke, and mesh networks. These terminals operate in the military portion of the SHF X-band frequency range over the DSCS and can only interface with the STAR-T in the X-band.

4-53. The POWER PAC3 company uses LOS equipment to interface with the STAR-T integrated switch. It will be used at the ARFOR Main CP to allow for geographical dispersion of site circuits throughout the CP AOR.

4-54. **HN and Commercial Communications**. HN and commercial communications has local switching centers, loop distribution networks, and interswitch transport systems (radio, cable, fiber optics, and satellite). HN systems vary from country to country, but basic international standards apply.

4-55. **Tactical Packet Network.** The TPN is a data network made up of interconnected packet switches overlaid on the circuit switched network. Users access the TPN by directly connecting to the packet switch or to a LAN. The TPN provides users the ability to pass data throughout the battlefield and back to the sustaining base through defense integrated secure network (DISNET) 1.

4-56. The STAR-T located at the ARFOR Main CP, ARFOR Forward CP, and each LNO team site provides packet switching. The STAR-T has an integrated packet switching capability and supports users via LANs. Additional users can connect directly to the packet switch or through dial-up into the circuit switch.

4-57. **Mobile Gateway Van.** The absence of multilevel security (MLS) prevents users on the TPN from sending and receiving e-mail messages to the sustaining base through the unclassified NIPIRNET. The MGV provides an interim solution for tactical users.

4-58. The MGV provides a tactical extension of the unclassified NIPIRNET for tactical users through router technology/packet network. The MGV provides users e-mail, file transfer, and telecommunications network (TELNET) capabilities over the NIPIRNET.

4-59. Two MGVs are available for each POWER PAC3 company. The MGV will provide NIPIRNET access to all users on the battlefield. The data team located at the ARFOR Main CP installs, operates, and maintains the MGV.

4-60. **Down-Sized Message Switch**. POWER PAC3 company provides messaging capability via DMS products directly connected to the tactical network which may be used for sending and receiving both general support (GENSER) (R) and DSSCS (Y) formal record traffic.

4-61. Users can access the switch directly through an encryption device or by dialing the circuit switch with a secure telephone. Subscribers without a direct or dial-up connection can send and receive messages directly from the message center (over-the-counter). The message center is located at the ARFOR Main CP.

4-62. **Tactical VTC System.** VTC service with worldwide connectivity is possible through tactical communications systems. Recent lessons learned demonstrate enhancement of the commander's span of control through VTC support. A deployed commander can meet face-to-face with either subordinate or senior commanders on a moment's notice through tactical VTC systems. Secure networks support these systems. A tactical VTC system would be based out of the ARFOR Main CP and provide connectivity with the Forward and LNO sites and as strategic locations via network gateways.

4-63. Emerging technology has made VTC communications an extremely viable combat multiplier for the commander. As additional services become available, they will be integrated with POWER PAC3 company's capabilities.

SIGNAL TELECOMMUNICATIONS BATTALION (AREA), TOE 11635L

4-64. This unit's mission is to install, operate, and maintain communications nodes. This unit provides two extension nodes to support medium-sized functional commands (such as the MEDCOM or PERSCOM).

4-65. This unit can install area communications system facilities consisting of three or four area nodes, 12 SENs, and two medium headquarters extension nodes with three organic area signal companies (see Figure 4-8).
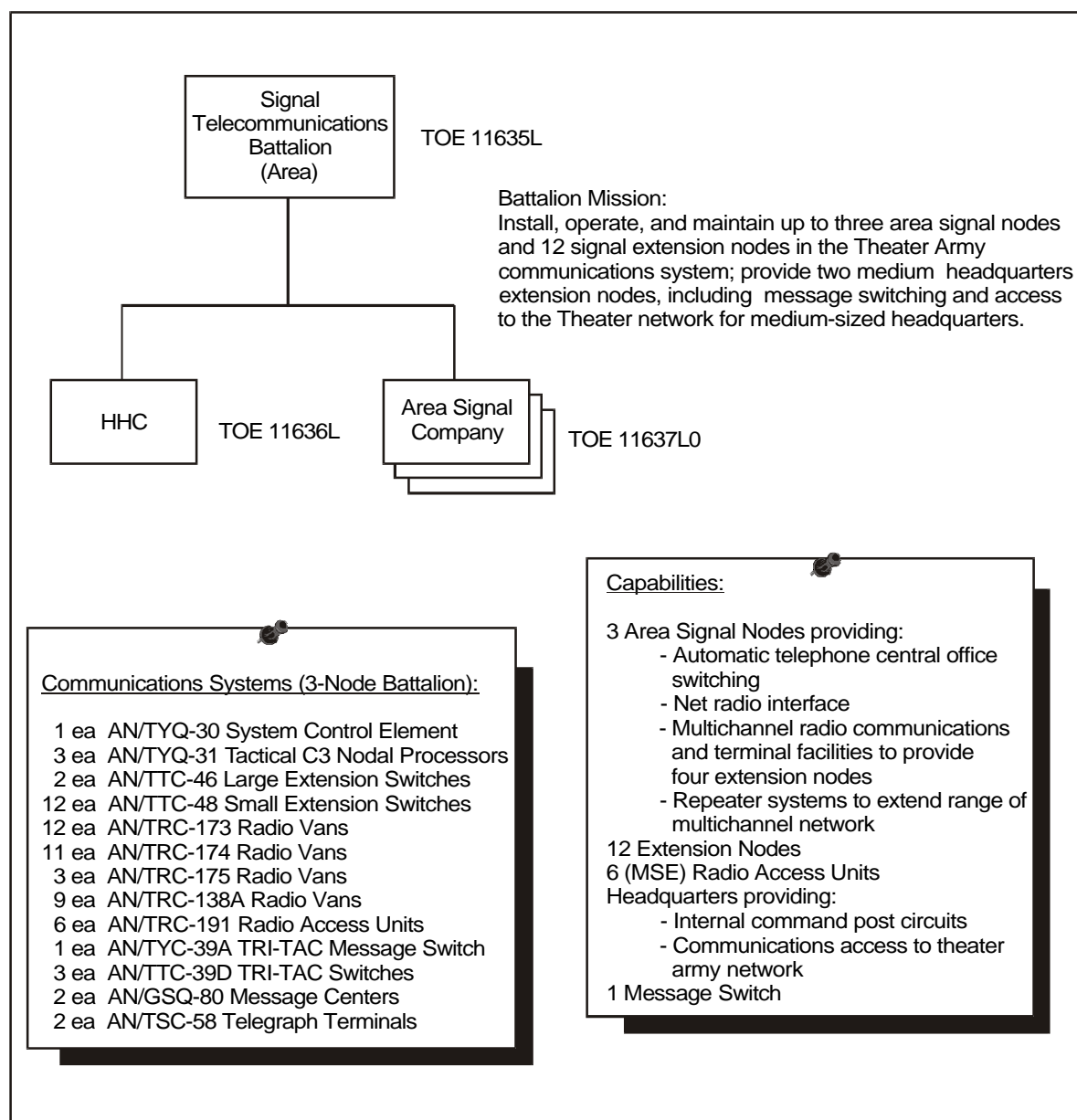
Signal Telecommunications Battalion (Area)

TOE 11635L

Battalion Mission:
Install, operate, and maintain up to three area signal nodes and 12 signal extension nodes in the Theater Army communications system; provide two medium headquarters extension nodes, including message switching and access to the Theater network for medium-sized headquarters.

HHC   TOE 11636L

Area Signal Company   TOE 11637L0

Communications Systems (3-Node Battalion):

1 ea AN/TYQ-30 System Control Element
3 ea AN/TYQ-31 Tactical C3 Nodal Processors
2 ea AN/TTC-46 Large Extension Switches
12 ea AN/TTC-48 Small Extension Switches
12 ea AN/TRC-173 Radio Vans
11 ea AN/TRC-174 Radio Vans
3 ea AN/TRC-175 Radio Vans
9 ea AN/TRC-138A Radio Vans
6 ea AN/TRC-191 Radio Access Units
1 ea AN/TYC-39A TRI-TAC Message Switch
3 ea AN/TTC-39D TRI-TAC Switches
2 ea AN/GSQ-80 Message Centers
2 ea AN/TSC-58 Telegraph Terminals

Capabilities:

3 Area Signal Nodes providing:
    - Automatic telephone central office switching
    - Net radio interface
    - Multichannel radio communications and terminal facilities to provide four extension nodes
    - Repeater systems to extend range of multichannel network
12 Extension Nodes
6 (MSE) Radio Access Units
Headquarters providing:
    - Internal command post circuits
    - Communications access to theater army network
1 Message Switch

Figure 4-8. Signal Telecommunications Battalion (Area)

4-66. Figure 4-9 shows an example of three telecommunications battalion's doctrinal employment.
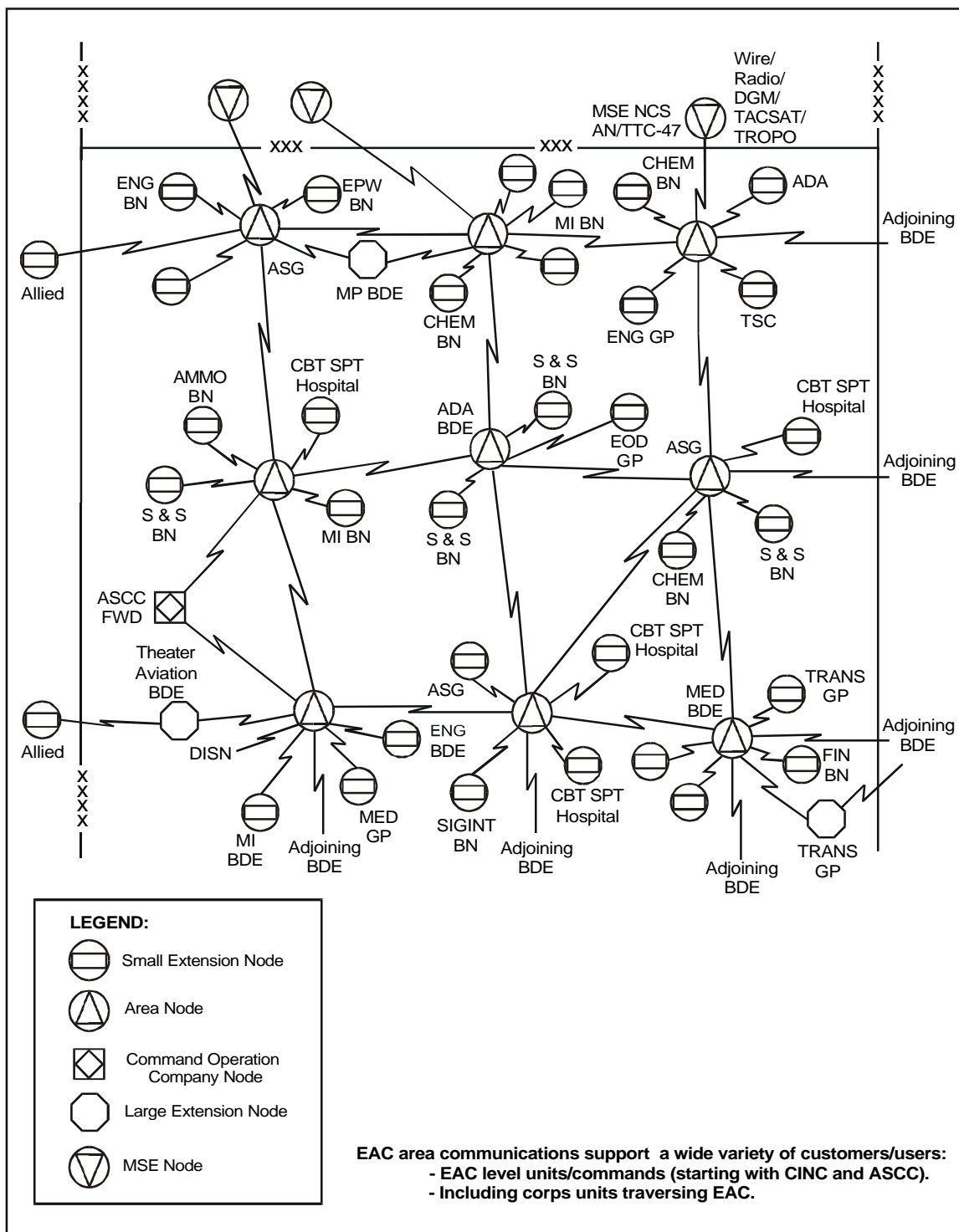
Figure 4-9. Doctrinal Employment of Telecommunications Battalions

HHC Signal Telecommunications Battalion (Area), TOE 11636L

4-67. This unit's mission is to–

- Provide C2 and administrative and logistical support for a signal telecommunications battalion (area).

- Install, operate, and maintain two medium headquarters extension nodes for internal CP communications and access to the area communications system.

4-68. Figure 4-10 shows the organization of a HHC signal telecommunications battalion (area).
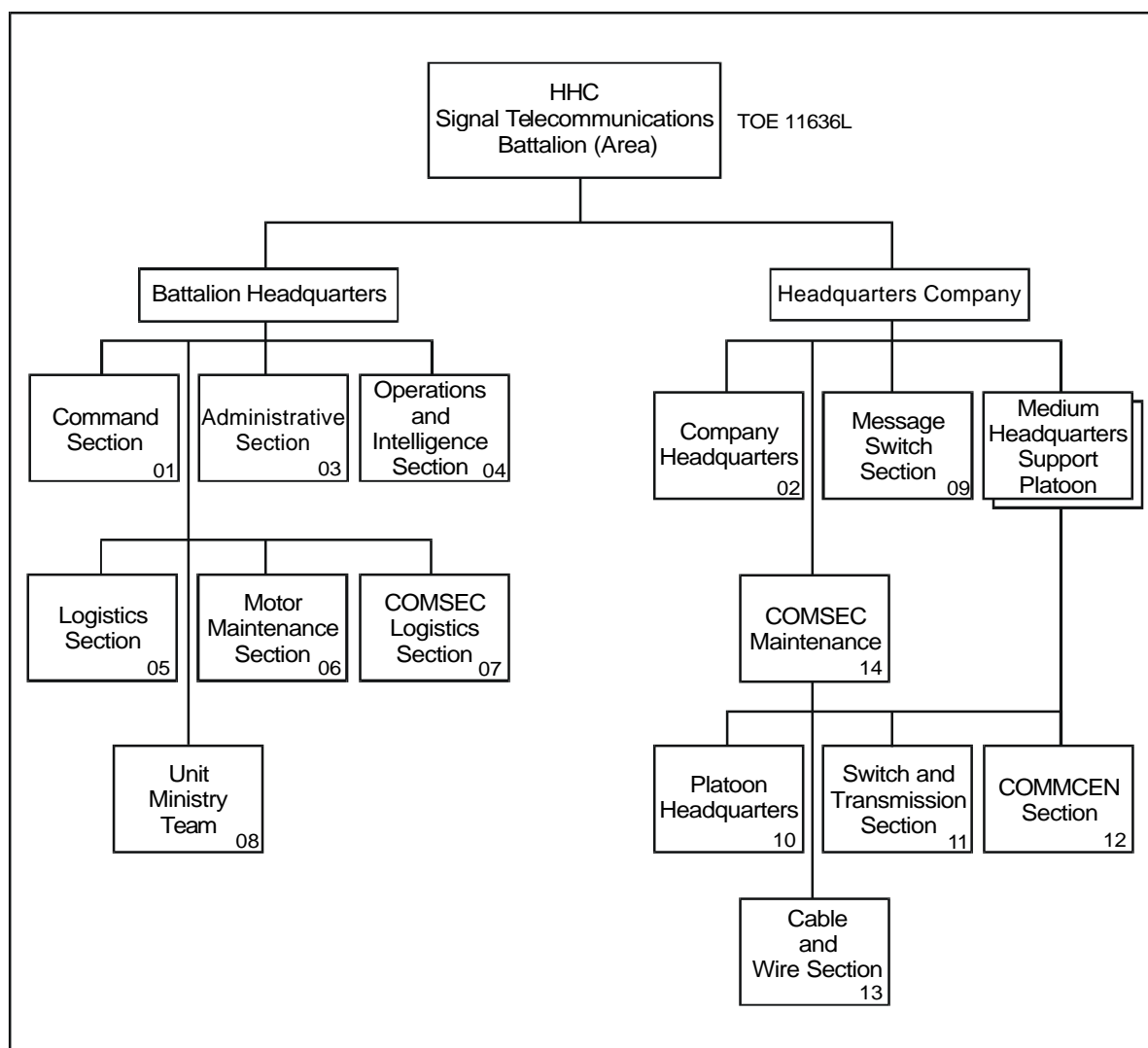
Figure 4-10. HHC Signal Telecommunications Battalion (Area)

4-69. This unit provides–
- C2, staff planning, and supervision of the battalion.
- Administrative and logistical support for the battalion to include–
  - Unit administration for assigned or attached units.
  - Staff supervision of automotive, power generation, and air conditioning equipment maintenance.
  - Backup unit maintenance and vehicle recovery for organic companies.
  - Bulk fuel resupply for units assigned to the battalion.
  - COMSEC DS maintenance for the battalion.
- Two medium headquarters extension node platoons that provide internal CP circuit and message switching, communications access, and over-the-counter service to the ASCC area communications systems for a medium size headquarters. (For example, TAACOM, MEDCOM, ENCOM, PERSCOM, TRANSCOM, and other comparable sized units.)
- Message switching facility for operation at one of three area nodal centers.
- Consolidated property book for assigned units.

4-70. This unit is authorized an additional 70 secure telephones and 100 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.

4-71. This unit depends on the ASCC for health, personnel; finance, legal, and administrative services; supplemental transportation; and photographic and construction engineer support. It is colocated with an area signal company for DS maintenance for CE equipment and food service support.

Area Signal Company, TOE 11637L0

4-72. This unit's mission is to install, operate, and maintain an area node and extension signal nodes in the common-user area nodal system of the TCS Figure 4-11 shows the organization of an area signal company. Figure 4-12 shows the area signal company site layout.

4-73. An area signal company area node provides–
- Automatic telephone office switching facilities, AN/TTC-39D.
- Net radio interface (NRI) for FM voice radio access to the TCS.
- Multichannel radio communications facilities that terminate systems between the area node, adjacent area nodes, and extension nodes.
- Multichannel radio terminal facilities, AN/TRC-173, that provide four extension switching nodes for units requiring access to the TCS.
- Multichannel radio communications repeater stations, AN/TRC-174, that extend the range of the multichannel radio system.
- Communications system control element (CSCE), AN/TYQ-31, for the management and control of the signal node facilities.

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- Food service and unit level maintenance of organic equipment and DS maintenance on organic signal equipment.

- Two MSE radio access units (RAUs), AN/TRC-191, that provide subscriber access to the TCS.

- Food service and DS maintenance for CE equipment organic to headquarters and headquarters company (HHC) signal telecommunications battalion (area).

4-74. Each telecommunications company (area) is authorized an additional 97 secure telephones and 168 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.

4-75. This unit depends on the HHC signal telecommunications battalion (area) for refueling services, unit level administration, religious support, and DS for COMSEC equipment. The unit depends on the ASCC for health services, finance, legal, and transportation services.
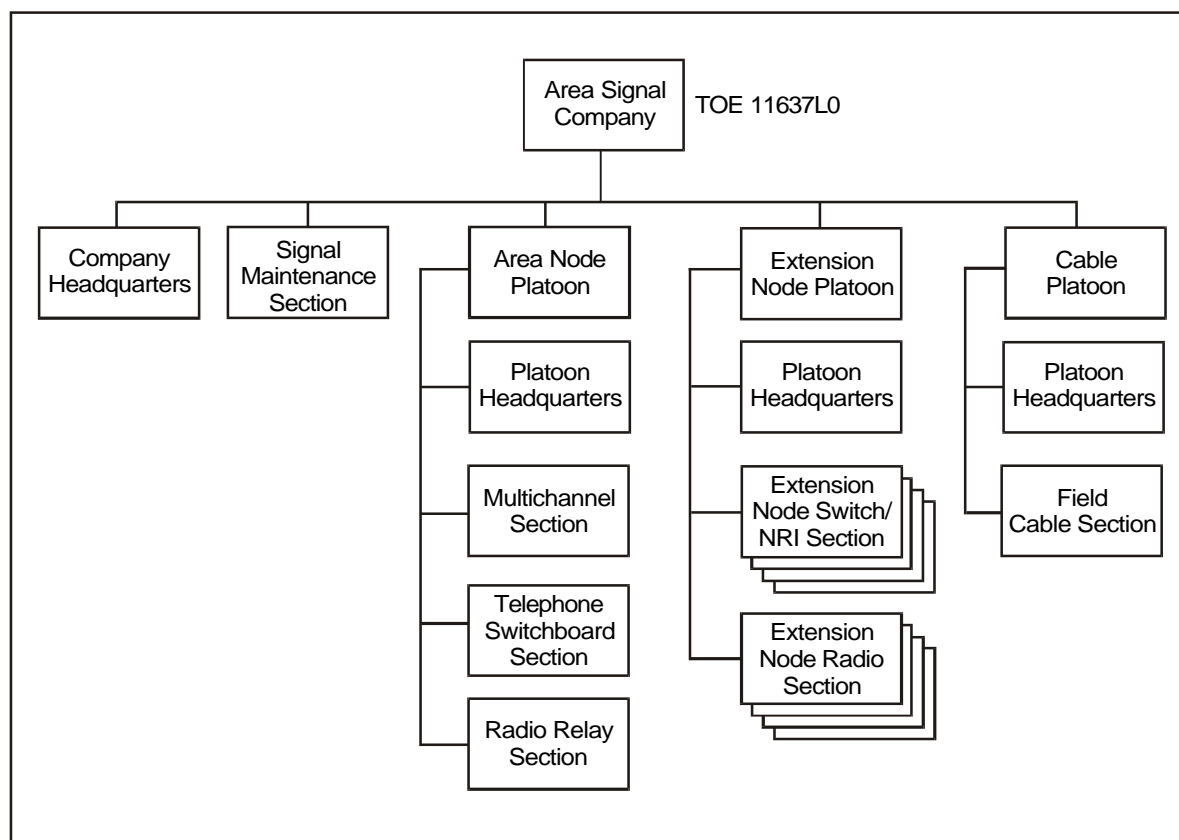
Figure 4-11. Area Signal Company
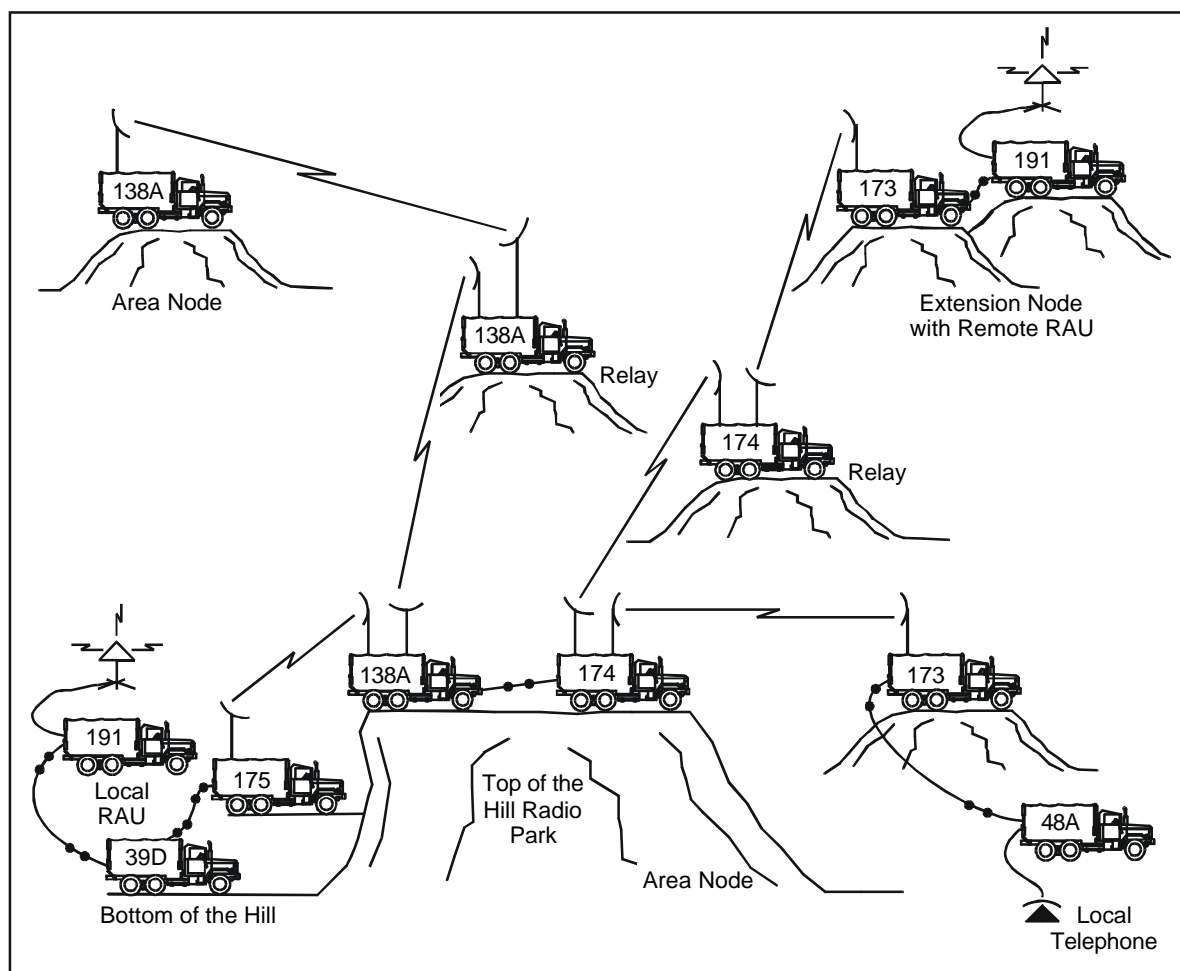
Figure 4-12. Area Signal Company Site Layout

SIGNAL BATTALION (COMPOSITE)

4-76. The signal battalion's (composite) mission is to install, operate, and maintain long-haul communications as part of the TSC and provide communications equipment to support JCS operations. Figure 4-13 shows the organization of the signal battalion (composite).

4-77. The battalion accomplishes its long-haul mission with a headquarters and headquarters detachment (HHD) signal battalion and five unique signal communications companies.

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                    ┌─────────────────┐
                    │ Signal Battalion │      (2 - 5 Companies, Any Mix)
                    │  (Composite)     │
                    └─────────────────┘
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Figure 4-13. Signal Battalion (Composite)

Boxes in Figure 4-13:

- Signal Battalion (Composite) — (2 - 5 Companies, Any Mix)
- HHD Signal Battalion (Composite) — TOE 11626L000
- Signal Company TROPO (Light) — TOE 11667L0
- Signal Company TROPO (Heavy) — TOE 11668L0
- Signal Company Command Operations — TOE 11669L0
- Signal Company Cable and Wire — TOE 11623L0
- Signal Company TACSAT — TOE 11603L100/ 11603L200
- Signal Detachment Reproduction Services — TOE 11570LA00

Figure 4-13. Signal Battalion (Composite)

HHD Signal Battalion (Composite), TOE 11626L000

4-78. This unit's mission is to provide C2 of assigned or attached units logistics support and internal security to the headquarters. Figure 4-14 shows the organization of a HHD signal battalion (composite).

Boxes in Figure 4-14:

- HHD Signal Battalion (Composite) — TOE 11626L000
- Battalion Headquarters
- Detachment Headquarters 02
- Command Section 01
- Administrative Section 03
- Logistics Section 04
- Motor Maintenance Section 05
- Operations and Intelligence Section 06
- Unit Ministry Team 07
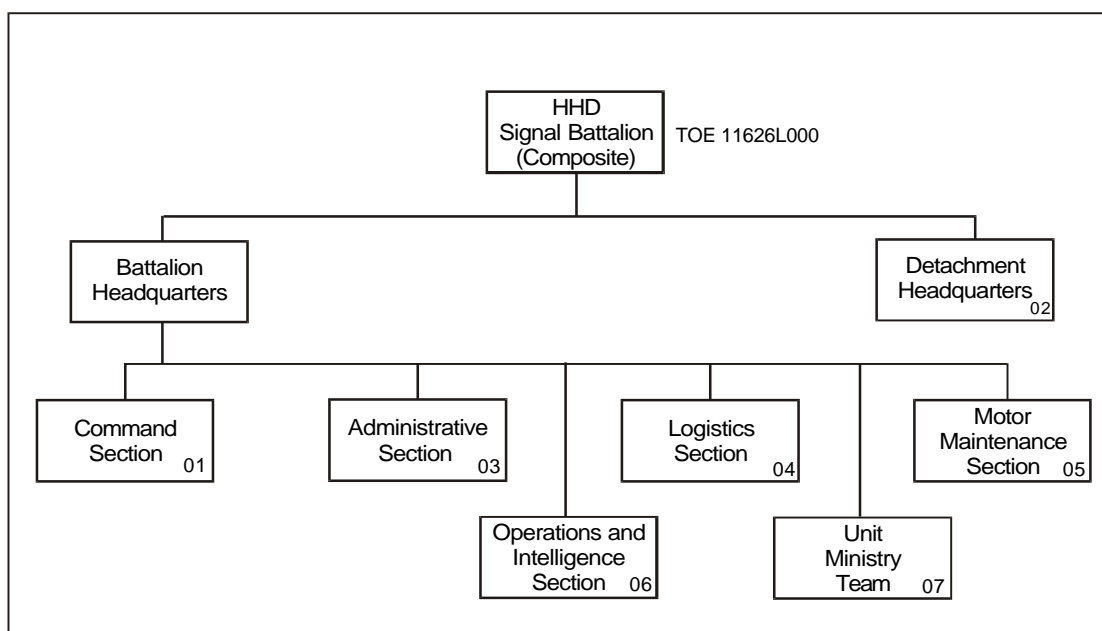
Figure 4-14. HHD Signal Battalion (Composite)

4-79. This unit–

- Provides C2, staff planning, and supervision of a signal battalion, consisting of two to five companies.

- Maintains a consolidated property book for assigned units.

- Supplements an assigned unit with food service and motor maintenance support.

- Provides religious support for the battalion.

- Provides a unit maintenance technician (light), who is responsible for ensuring that maintenance is correctly performed in the unique communications companies.

4-80. This unit depends on assigned units for maintenance of wheeled vehicles, generators, and air conditioners. It also depends on the ASCC for unit-level health, legal, finance, personnel, administrative, and food services; COMSEC maintenance; and supplemental transportation and vehicle recovery. This unit depends on subordinate companies for DS of CE/COMSEC maintenance.

Signal Company, Tropo (Light), TOE 11667L0

4-81. This unit's mission is to provide multichannel troposcatter radio communications links for long-distance communications. Figure 4-15 shows the organization of a signal company, tropo (light).
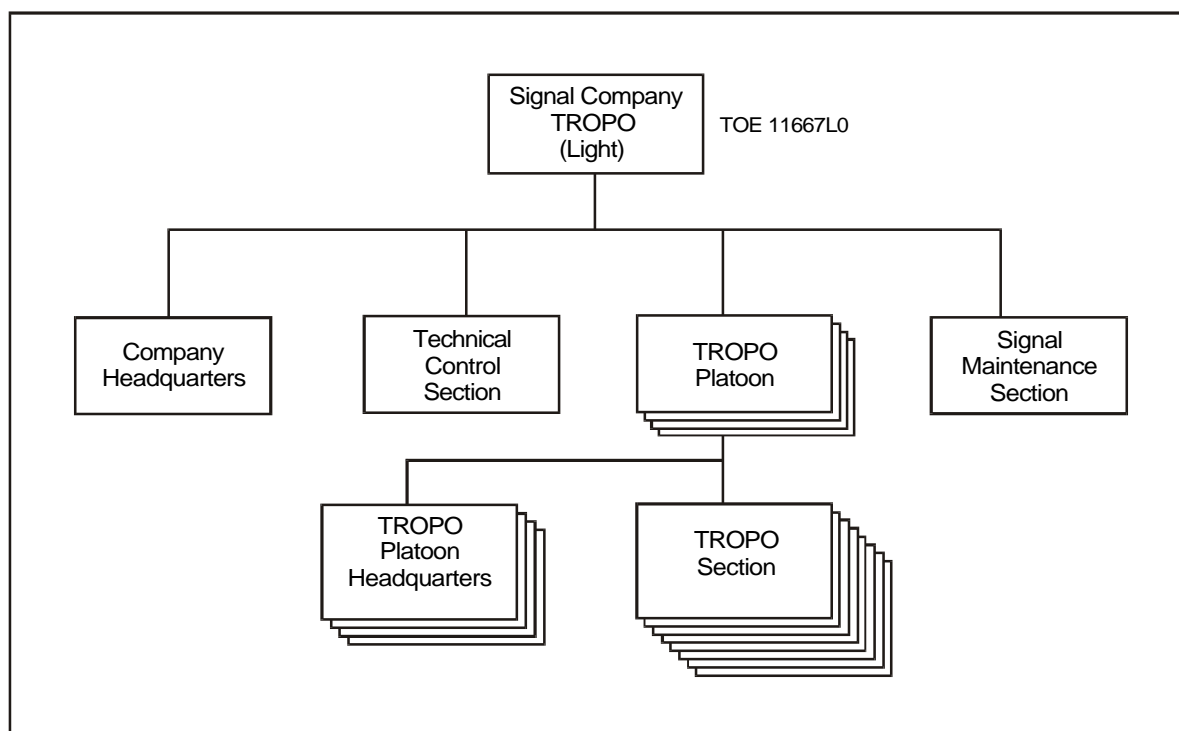
Figure 4-15. Signal Company, Tropo (Light)

4-82. This unit (AN/TRC-170V3)–

- Installs, operates, and maintains eight troposcatter radio communications links (two terminals per link). These links can span a distance of up to 161 kilometers (100 miles) with maximum traffic channels.

- Provides circuit patching and limited test facilities that provide a limited technical control capability.

- Provides food service and performance of DS maintenance on all organic signal and COMSEC equipment, and unit maintenance and vehicle recovery on organic equipment.

4-83. This unit depends on the ASCC for health services; legal, religious, finance, personnel, and administrative services; and supplemental transportation.

Signal Company, Tropo (Heavy), TOE 11668L0

4-84. The unit's mission is to provide multichannel troposcatter radio communications links for long-distance communications in the COMMZ. Figure 4-16 shows the organization of a signal company, tropo (heavy).
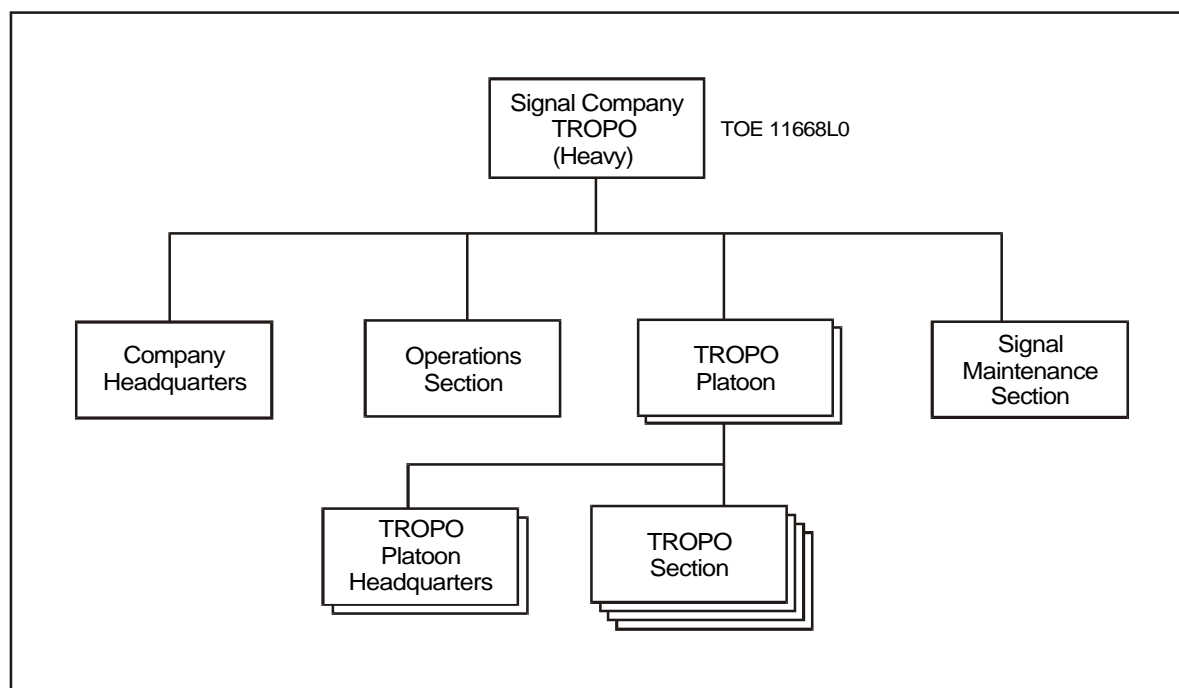
Figure 4-16. Signal Company, Tropo (Heavy)

4-85. This unit–

- Installs, operates, and maintains four troposcatter radio communications links (two terminals per link). These links can span up to 241 kilometers (150 miles).
- Operates in dual or quad diversity mode (space and frequency).
- Provides food service.
- Provides DS maintenance on all organic signal and COMSEC equipment.
- Provides unit maintenance and vehicle recovery on organic equipment.

4-86. This unit depends on the ASCC for–

- Health, legal, religious, financial, personnel, and administrative services.
- Supplemental transportation.
- Communications systems engineering support, to include frequency allocation, transmission path determination, antenna or orientation survey, and communications plan layout.
- Logistics support of CE equipment.

Signal Company (Command Operations Theater), TOE 11669L0

4-87. This unit's mission is to provide communications facilities in the TCS for an EAC MSC, ASCC Headquarters or an equivalent size headquarters Figure 4-17 shows the organization of a signal company (command operations theater).

4-88. The signal company (command operations theater) provides–

- Installation, operation, and unit maintenance of communications facilities supporting a major headquarters, which includes a main and rear or jump capability.
- Food service and unit-level maintenance of organic equipment and DS maintenance of CE/COMSEC equipment.
- Two circuit switches, AN/TTC-39D, providing service for up to 744 local telephones and one large extension switch providing service for up to 176 subscribers, both secure and nonsecure.
- Two technical control centers (TCC) for circuit patching, testing, and controlling terminal communications facilities.
- Four high-capacity LOS radio repeaters.
- Two 96-channel multiplex terminals for terminating the connecting links between the headquarters and two separate TCS switching centers.
- Two message switches, AN/TYC-39, equipped to provide facsimile service and normal message handling services to include over-the-counter service and messenger services with limited motor messenger capability.

- Two antenna erection teams to assemble and disassemble the antenna towers, extending the LOS multichannel over natural and manmade obstruction.
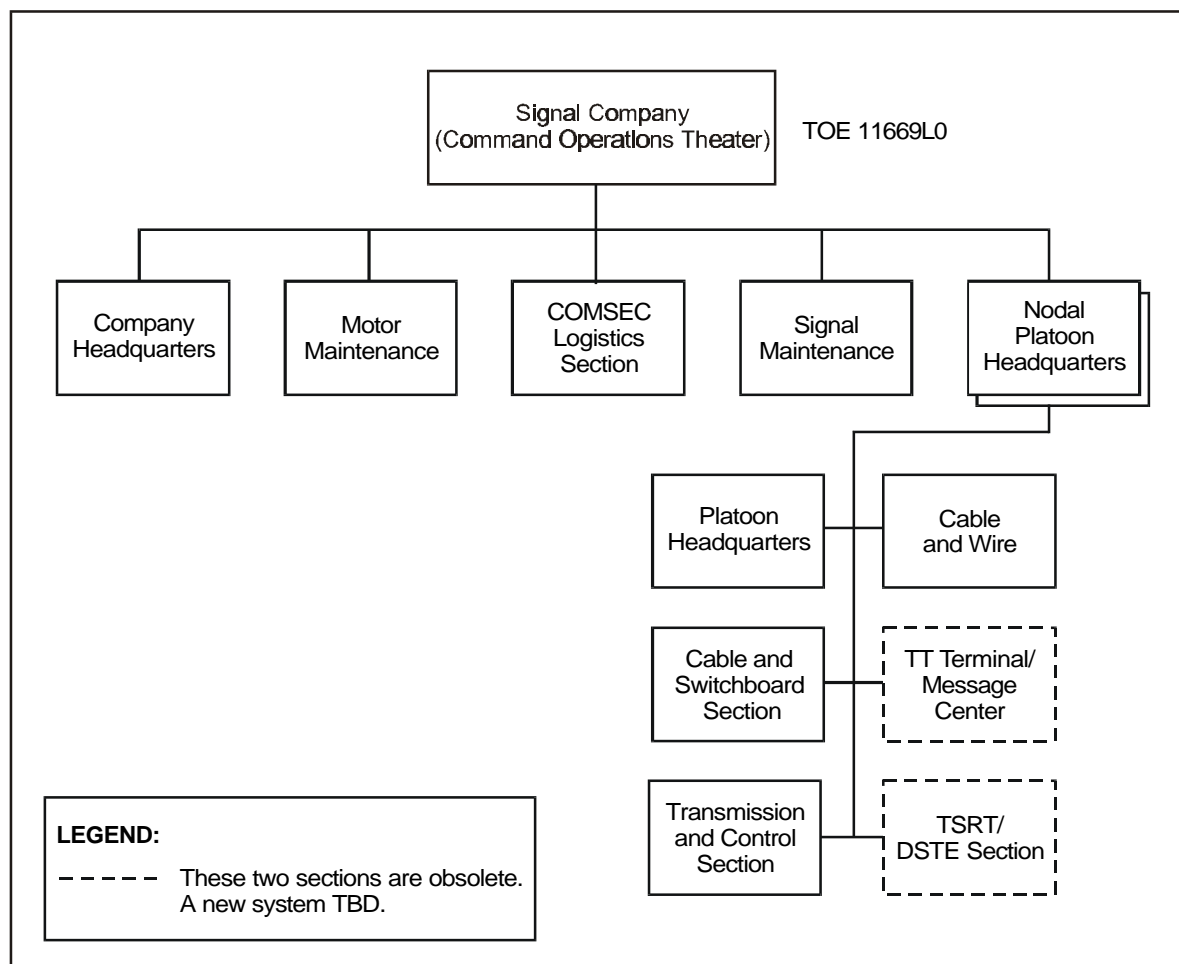

Figure 4-17. Signal Company (Command Operations Theater)

4-89. The signal company (command operations theater) is authorized an additional 157 secure telephones and 290 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.

4-90. This unit depends on the ASCC for health, financial, legal, religious, personnel, and administrative services; engineer construction support; and supplemental transportation requirements. It also depends on a signal cable and wire company for constructing all external coaxial cable systems.

Signal Company, Cable and Wire, TOE 11623L000

4-91. This unit's mission is to provide–

- Cable and wire circuits between major headquarters and subordinate units.
- Cable and wire circuits from multichannel radio sites to terminating or switching equipment.
- Interconnecting cables and wire between area nodes and the TCS.

4-92. Figure 4-18 shows the organization of a signal company, cable and wire.
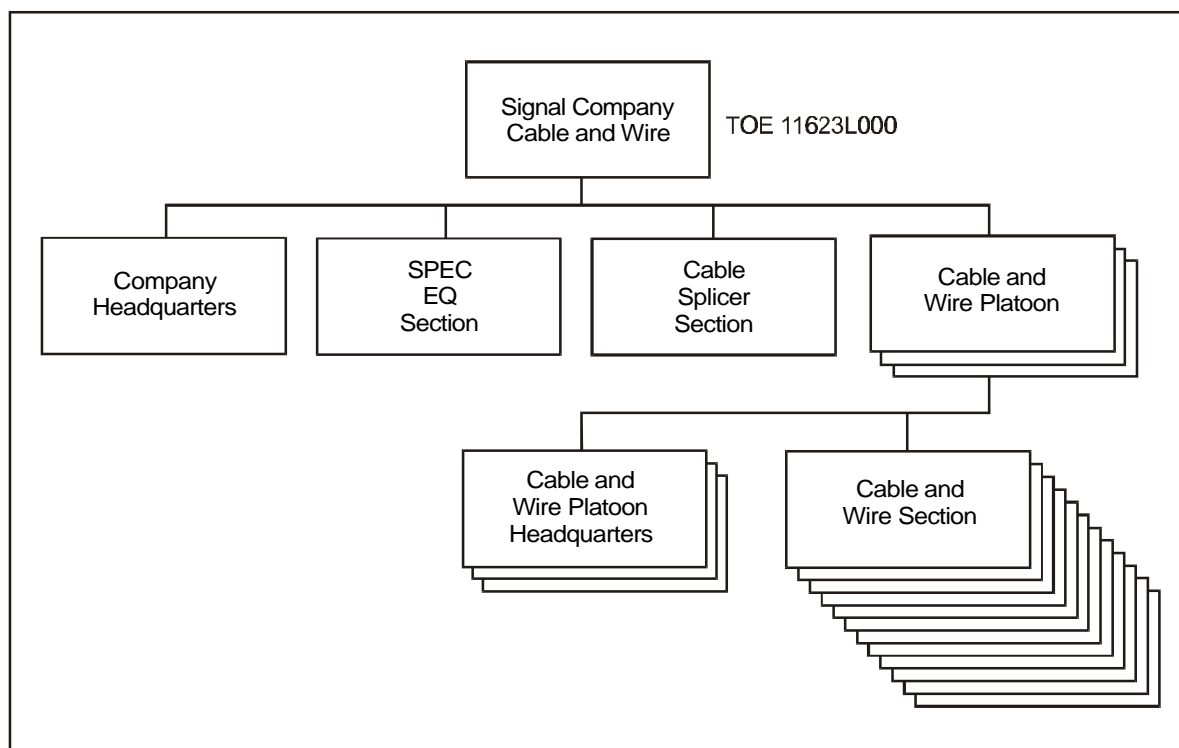
Figure 4-18. Signal Company, Cable and Wire

4-93. This unit–

- Installs, maintains, and repairs aerial, buried, or underground cable, wire, and fiber-optic transmission systems (FOTSs).
- Repairs and maintains indigenous cable and wire systems.
- Provides food service and unit maintenance on organic equipment.

4-94. This unit depends on the ASCC for unit-level health, finance, legal, personnel, and administrative services; supplemental transportation; COMSEC maintenance; and vehicle recovery over 5 tons. It also depends on a HHD, signal battalion for religious support.

Signal TACSAT Communications Company, TOE 11603L100/11603L200

4-95. This unit's mission is to provide TACSAT terminal facilities at major communications switching nodes and CPs in a TCS. The mission determines the type and quantity of TACSAT systems and identifies the tailoring of the TOE to support the requirement. Figure 4-19 shows the organization of a signal TACSAT communications company.
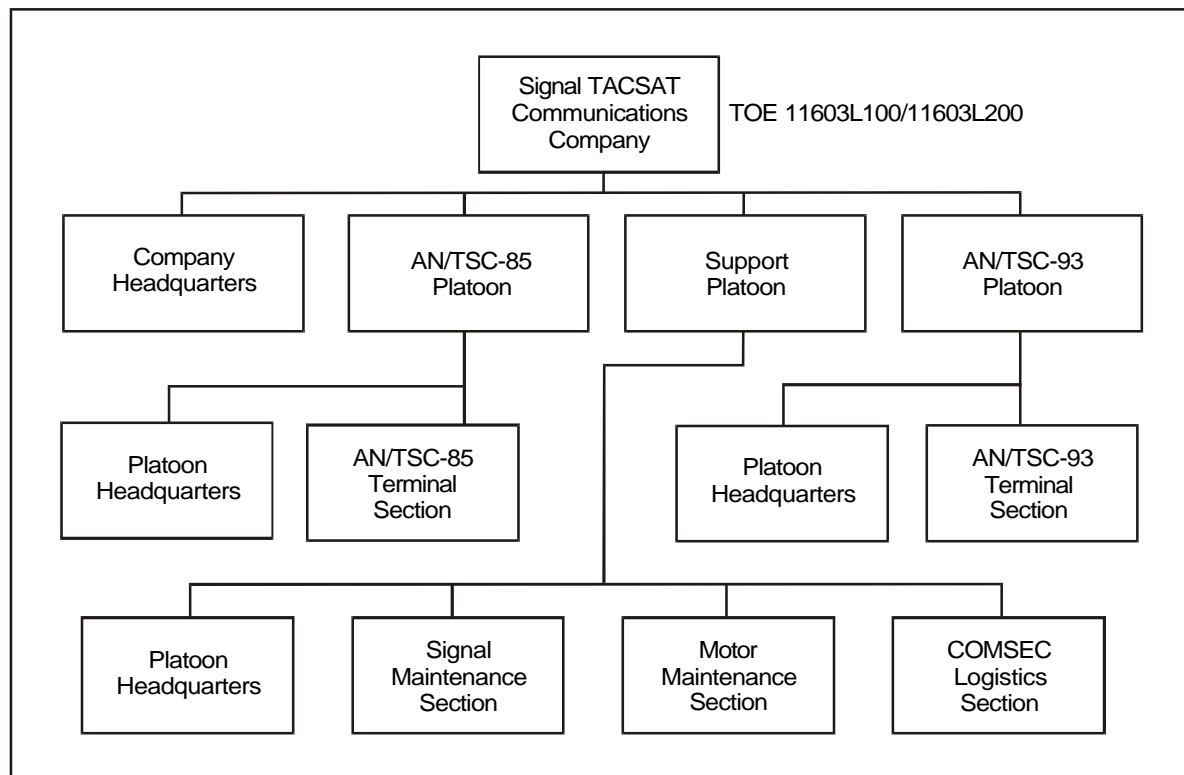
Figure 4-19. Signal TACSAT Communications Company

4-96. This unit–

- Installs, operates, and maintains eight SATCOM terminals (AN/TSC-85) and eight SATCOM terminals (AN/TSC-93) or six SATCOM terminals (AN/TSC-85) and 10 SATCOM terminals (AN/TSC-93).
- Provides multichannel TACSAT that provides connectivity between key EAC headquarters based on distance, terrain, criticality of links, and the need to augment LOS relays.
- Provides unit maintenance on all organic equipment and DS maintenance on organic COMSEC and signal equipment.
- Provides supplemental food service support.

4-97. This unit depends on Army units for–

- Health, religious, legal, financial, personnel, administrative, and food services.
- Bulk POL resupply.
- Supplemental transportation, including aircraft support for maintenance contact teams and critical equipment evacuation.

Signal Detachment, Reproduction Services, TOE 11570LB00

4-98. The signal detachment, reproduction services' mission is to provide volume reproduction for all Army units at theater level. Individuals of these organizations can assist in the coordinated defense of the unit's area or installation. Figure 4-20 shows the organization of a signal detachment, reproduction services.
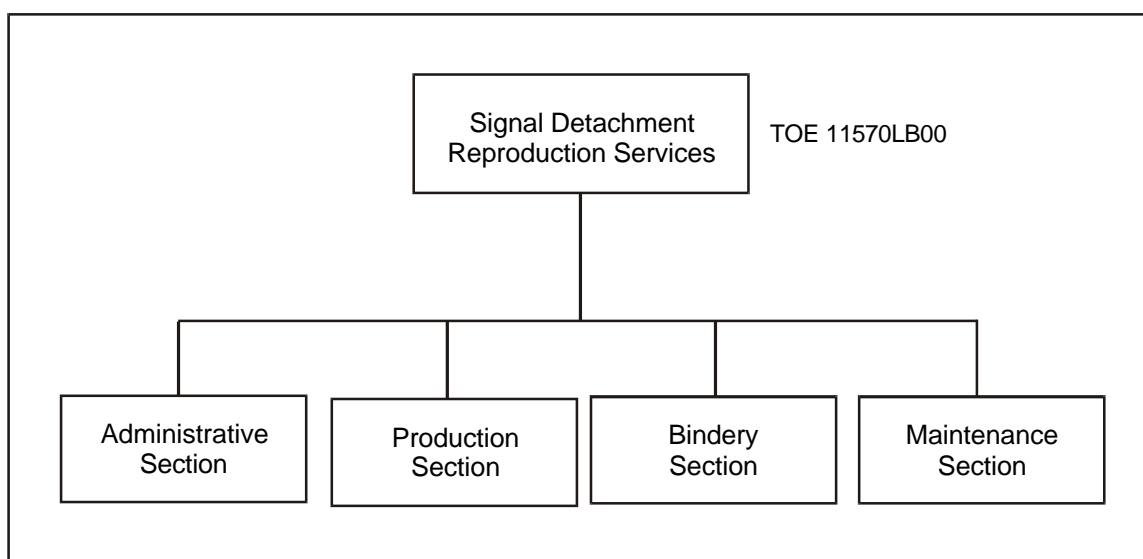
Figure 4-20. Signal Detachment, Reproduction Services

4-99. This unit installs, operates, and maintains a reproduction facility that provides volume reproduction services to units serviced. Reproduction services include duplicating, collating, binding, and packaging.

4-100. This unit depends on the ASCC for health services; legal, religious, finance, personnel, and administrative services; transportation; communications; and unit maintenance. This unit requires external support of truck tractors to deploy semi-trailers.

THEATER TACTICAL SIGNAL BATTALION, TOE 11685A000

4-101. The theater tactical signal battalion's mission is to install, operate, and maintain nodal communications support for the commander of the ARFOR component to a CINC or JTF contingency operation or a major regional conflict (MRC) deployment.

4-102. This unit accomplishes its mission with a HHC signal battalion and four communications companies (two command support companies, a minor support company, and a major support company). Figure 4-21 shows the organization of a theater tactical signal battalion. Figure 4-22 shows the notional deployment of a theater tactical signal battalion.
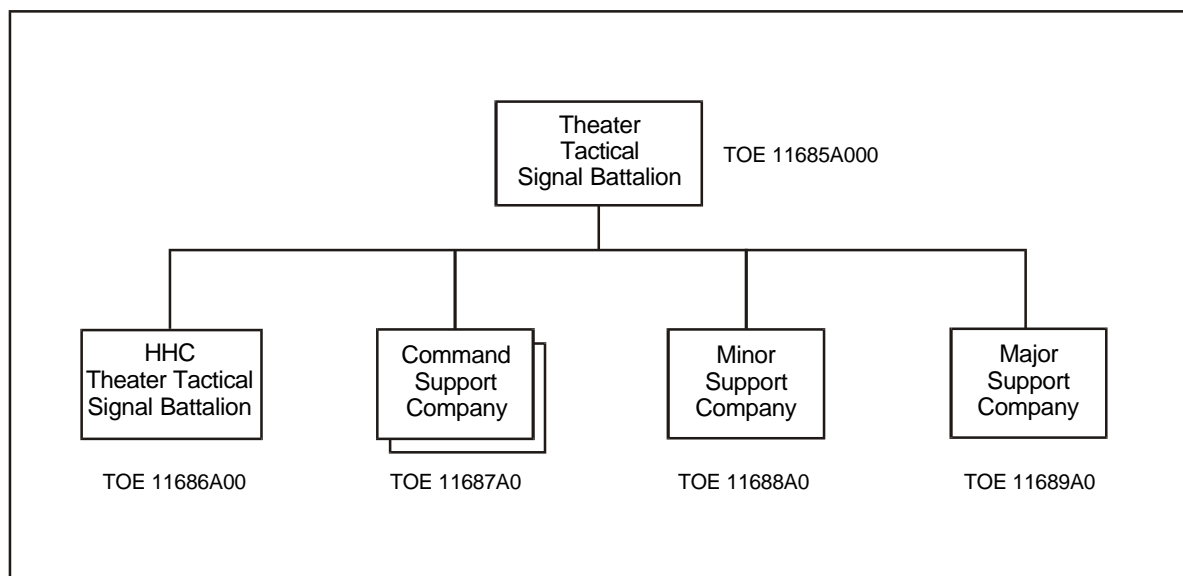
Figure 4-21. Theater Tactical Signal Battalion
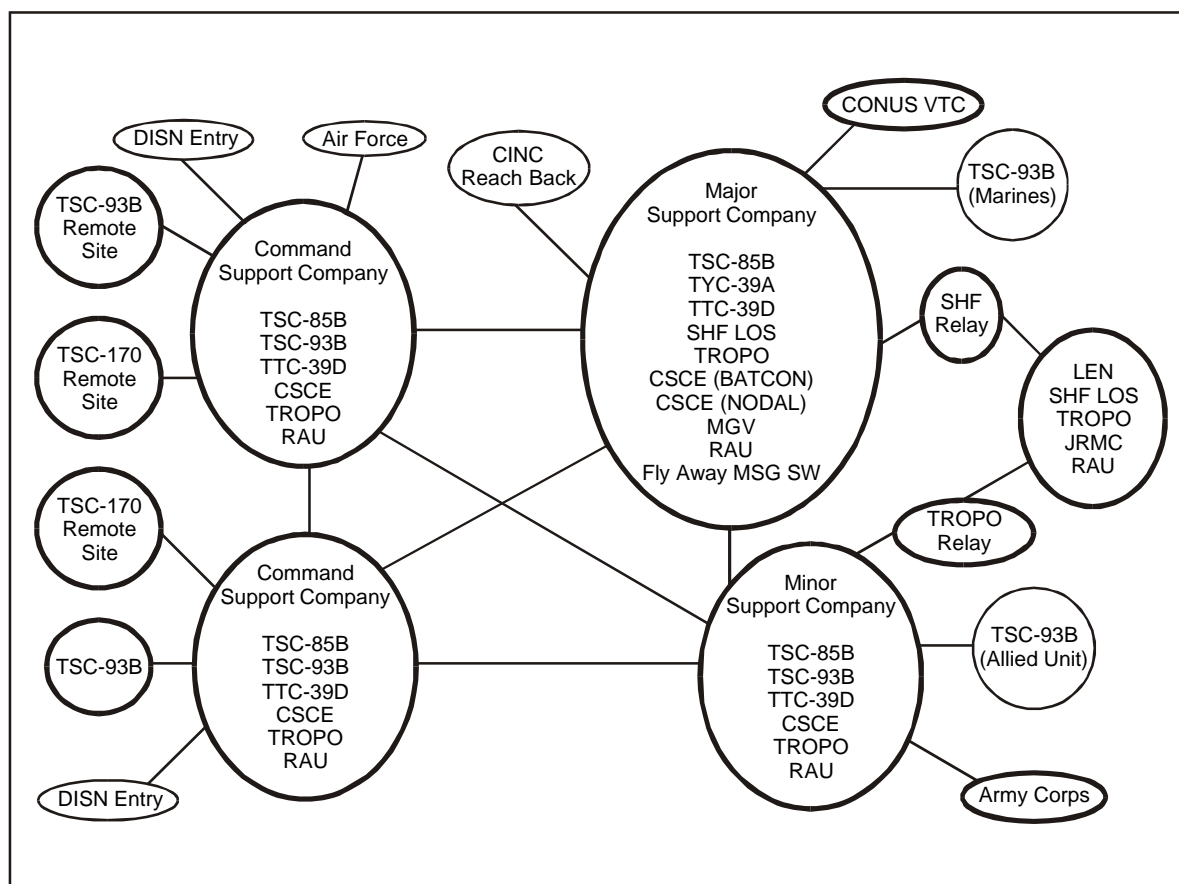
Figure 4-22. Notional Deployment of a Theater Tactical Signal Battalion

HHC Theater Tactical Signal Battalion, TOE 11686A00

4-103. This unit's mission is to provide C2 of assigned or attached units and logistics support and internal security to the headquarters. Figure 4-23 shows the organization of a HHC theater tactical signal battalion.

4-104. This unit–

- Provides C2, staff planning, and supervision of a signal battalion consisting of four companies.
- Maintains a consolidated property book for assigned units.
- Provides organic food service and unit maintenance support, as well as DS maintenance of organic CE/COMSEC equipment.
- Provides religious support, food service support, and DS of organizational COMSEC equipment.

4-105. This unit depends on assigned units for unit maintenance of wheeled vehicles, generators, and air conditioners. It also depends on the ASCC for unit-level health, legal, finance, personnel, administrative, and food services; COMSEC maintenance; and supplemental transportation and vehicle recovery.
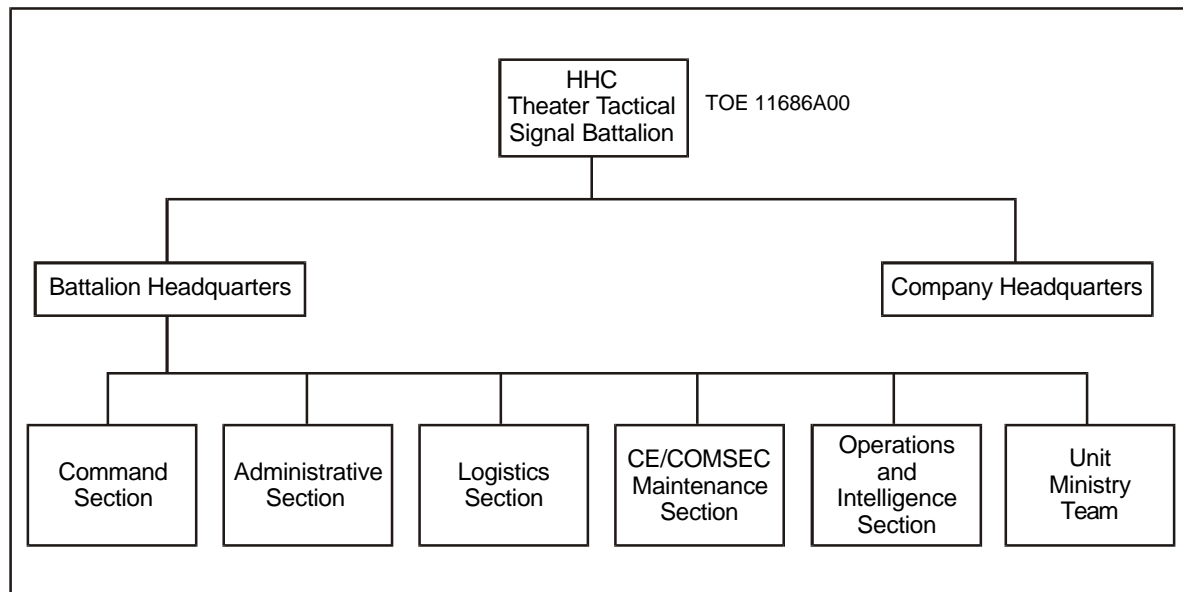
Figure 4-23. HHC Theater Tactical Signal Battalion

Command Support Company, TOE 11687A0

4-106. This unit's mission is to provide nodal communication support for the ARFOR components to a CINC or JTF contingency operation or a MRC deployment Figure 4-24 shows the organization of a command support company.

4-107. This unit provides–

- Food service and unit level maintenance of organic equipment, as well as DS of organic CE/COMSEC equipment.
- Automatic telephone office switching facilities, AN/TTC-39D.
- CSCE, AN/TYQ-31, for the management and control of the signal node facilities.
- AN/TSC-85B/93B SATCOM terminals to provide secure, high data rate communication via satellite link.
- Installation, operation, and maintenance of two troposcatter radio systems, AN/TRC-170 V2. These systems can span a distance of up to 161 kilometers (100 miles) with maximum traffic channels.
- One MSE RAU, AN/TRC-191, to provide subscriber access to the TCS.
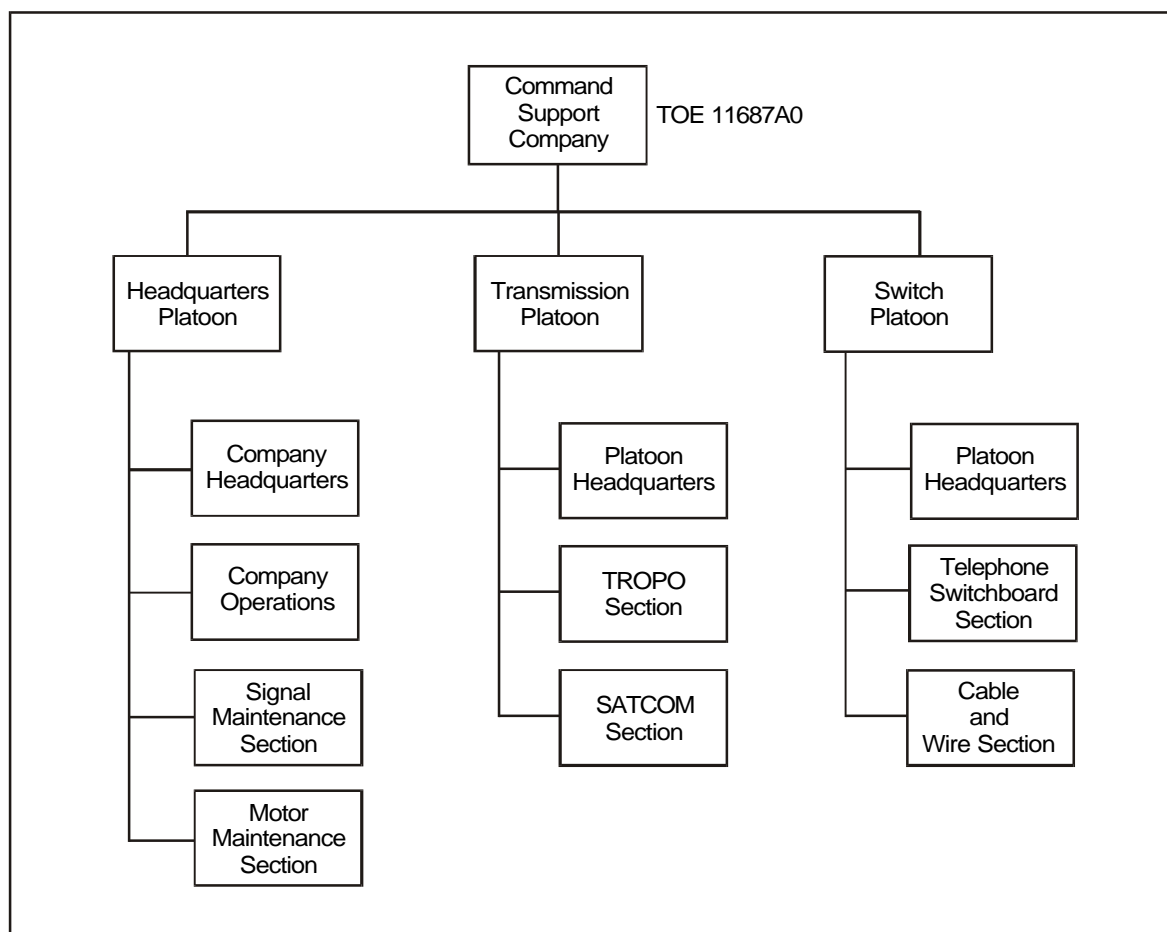- Installation, maintenance, and repair of indigenous cable and wire systems.

Figure 4-24. Command Support Company

4-108. Each command support company is authorized an additional 61 secure telephones and 210 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.

4-109. This unit depends on the HHC theater tactical signal battalion for refueling services, unit-level administration, religious support, and DS for COMSEC equipment. The unit depends on the TSC for health, finance, legal, and transportation services.

Minor Support Company, TOE 11688A0

4-110. This unit's mission is to provide nodal communication support for the ARFOR components to a CINC or JTF contingency operation or a MRC deployment. Figure 4-25 shows an example of a minor support company.
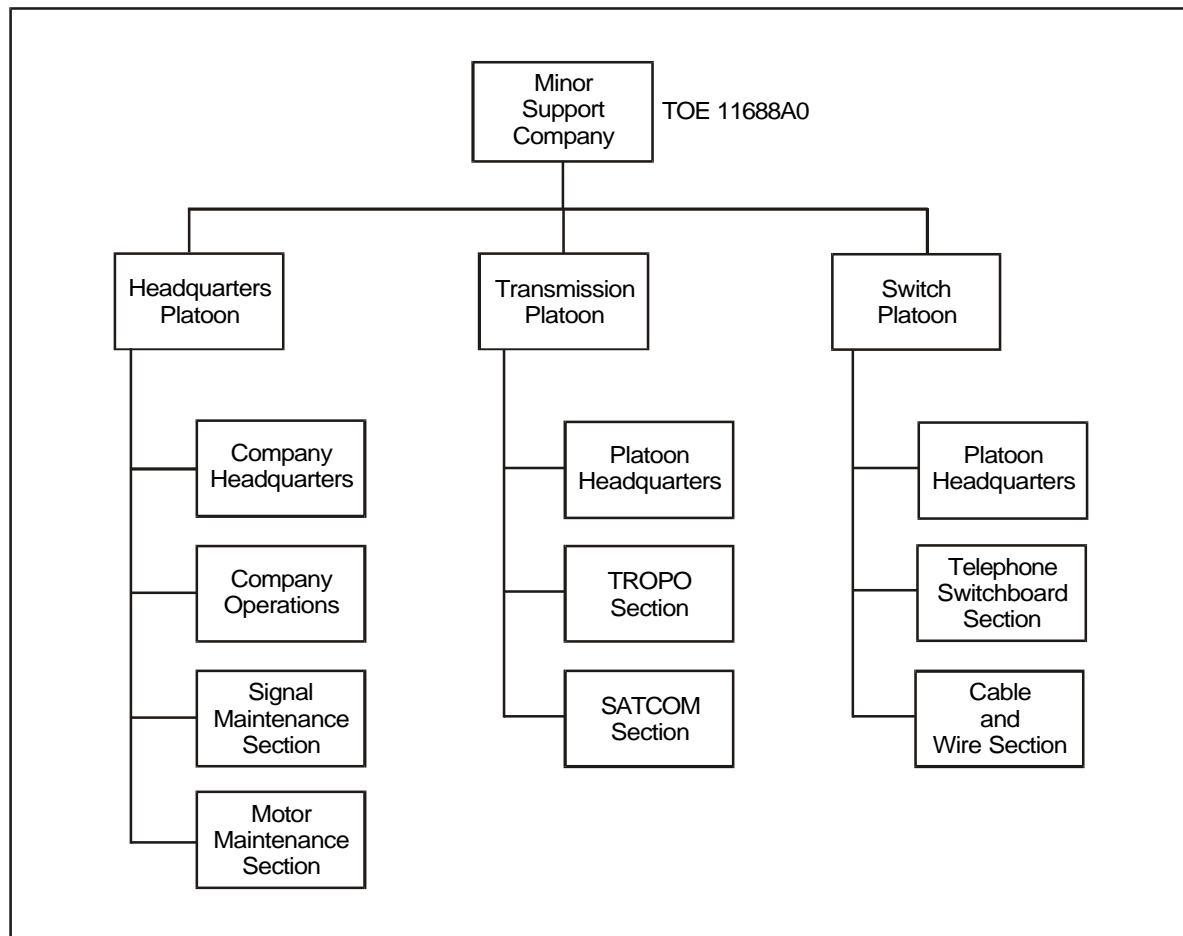
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                    ┌─────────────┐
                    │    Minor    │
                    │   Support   │  TOE 11688A0
                    │   Company   │
                    └──────┬──────┘
        ┌──────────────────┼──────────────────┐
 ┌──────┴──────┐    ┌──────┴──────┐    ┌──────┴──────┐
 │ Headquarters│    │ Transmission│    │    Switch   │
 │   Platoon   │    │   Platoon   │    │   Platoon   │
 └──────┬──────┘    └──────┬──────┘    └──────┬──────┘
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Headquarters Platoon	Transmission Platoon	Switch Platoon
Company Headquarters	Platoon Headquarters	Platoon Headquarters
Company Operations	TROPO Section	Telephone Switchboard Section
Signal Maintenance Section	SATCOM Section	Cable and Wire Section
Motor Maintenance Section		

Figure 4-25. Minor Support Company

4-111. This unit provides–

- Food service and unit-level maintenance of organic equipment and DS maintenance of CE/COMSEC equipment.

- Automatic telephone office switching facilities, AN/TTC-39D.

- CSCE, AN/TYQ-31, for the management and control of the signal node facilities.

- Two AN/TSC-93B SATCOM terminals to provide secure, high data rate communication via satellite link.

- Installation, operation, and maintenance of two troposcatter radio systems. These systems can span a distance of up to 161 kilometers (100 miles) with maximum traffic channels.

- One MSE RAU, AN/TRC-191, to provide subscriber access to the TCS.

- Installation, maintenance, and repair of indigenous cable and wire systems.

4-112. The minor support company is authorized an additional 61 secure telephones and 210 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.

4-113. This unit depends on the HHC theater tactical signal battalion for refueling services, unit-level administration, religious support, and DS for COMSEC equipment. The TSC provides health, finance, legal, and transportation services.

Major Support Company, TOE 11689A0

4-114. This unit's mission is to provide nodal communication support for the ARFOR components to a CINC or JTF contingency operation or a MRC deployment. Figure 4-26 shows the organization of a major support company.
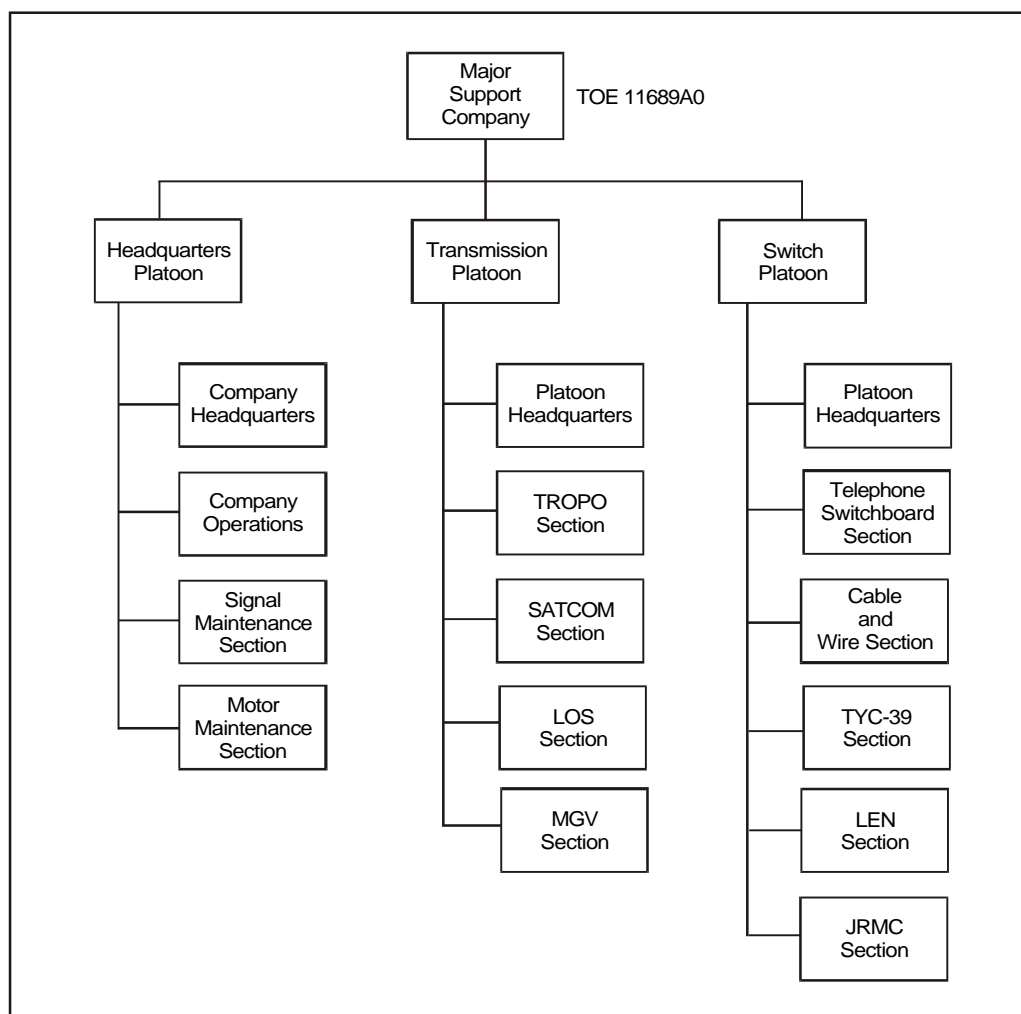

Figure 4-26. Major Support Company

4-115. This unit provides–

- Food service and unit-level maintenance of organic equipment and DS maintenance of CE/COMSEC equipment.

- Automatic telephone office switching facilities: one AN/TTC-39D and one AN/TTC-46.

- CSCE, AN/TYQ-31, for the management and control of the signal node facilities.

- Message switch, AN/TYC-39, equipped to provide secure automatic message switching service.

- Two each AN/TSC-85B SATCOM terminals to provide secure, high data rate communication via satellite link.

- Installation, operation, and maintenance of two troposcatter radio systems. These systems can span a distance of up to 161 kilometers (100 miles) with maximum traffic channels.

- One MSE RAU, AN/TRC-191, to provide subscriber access to the TCS.

- Installation, maintenance, and repair of indigenous cable and wire systems.

- Multichannel radio communications facilities to terminate systems.

- A fly-away message switch to provide record data communications message support and over-the-counter service for both classified and unclassified customers.

- A MGV to provide an extension of the nonclassified NIPRNET into the tactical deployed theater.

4-116. The major support company is authorized an additional 105 secure telephones and 319 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.

4-117. This unit depends on the HHC, theater tactical signal battalion for refueling services, unit-level administration, religious support, and DS for COMSEC equipment. The TSC provides health, finance, legal, and transportation services.

MAJOR SUPPORT COMPANY (SEPARATE), TOE 11689A200

4-118. The major support company's (separate) mission is to install, operate, and maintain nodal communications support for the commander of an ARFOR component to a CINC or JTF contingency operation or an MRC. Figure 4-27 shows the organization a major support company separate. This unit can be assigned to a strategic signal battalion, theater signal brigade, or TSC. The basis of allocation is as required in a MRC not to exceed one per TOE 11602L000.

4-119. The major support company (separate) provides the following information and signal support services:

- Secure and nonsecure voice and data.

- HN/commercial telephone access.

- Network entry for mobile subscriber radio terminal (MSRT).

- MSRT users.

- Increased theater connectivity.

- CNR interface.

- TPN interface.

- Global Command and Control System-Army (GCCS-A) connectivity.

- LAN tech support (systems management assistance).

- Multiple means of long-range communications.

- Mobile e-mail host.

- Flood search routing.

4-120. This unit is authorized an additional 96 secure telephones and 297 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.
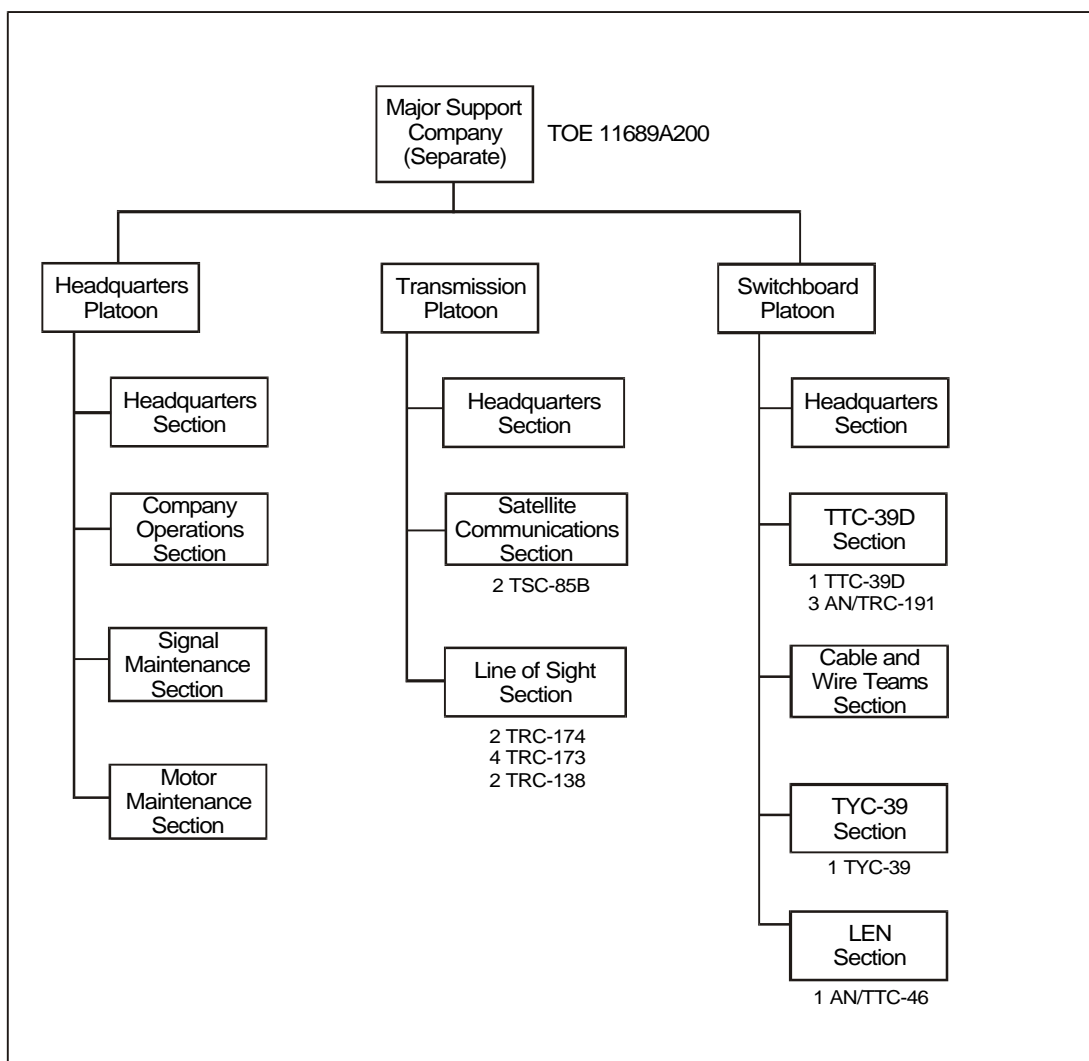

Figure 4-27. Major Support Company (Separate)

THEATER TACTICAL SIGNAL COMPANY (SEPARATE) (TTSC [SEP]), TOE 11674A000

4-121. The TTSC's (SEP) mission is to install, operate, and maintain nodal communications support for the commander of an ARFOR component to a CINC or JTF contingency operation or a MTW. The TTSC (SEP), as a separate company, can be assigned to a strategic signal battalion, theater signal brigade, or TSC. The unit may be forward deployed or CONUS-based and deployed in support of an ASCC JFLCC, subordinate unified command, JTF, single-service force, or theater CINC. Figure 4-28 shows the organization of a TTSC (SEP). The basis of allocation is as required in a MTW not to exceed one per TOE 11800A000.
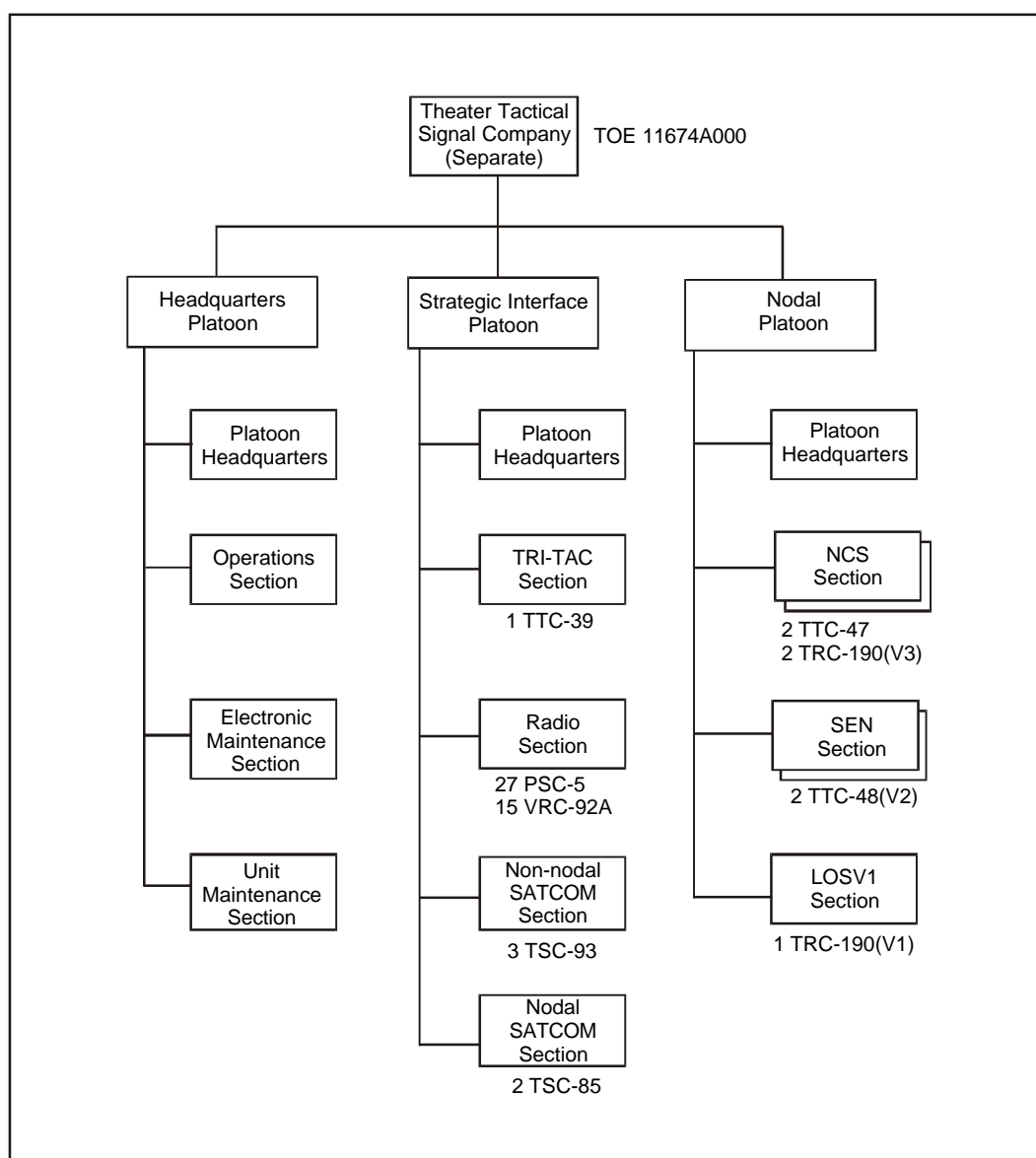
Figure 4-28. Organization of the Theater Tactical Signal Company (Separate)

4-122. The TTSC (SEP) provides the following information and signal support services:

- Secure and nonsecure voice and data.

- HN/commercial telephone access.

- Increased theater connectivity.

- CNR interface.

- TPN interface.

- GCCS-A connectivity.

- LAN technical support (systems management assistance).

- Multiple means of long-range communications.

- Flood search routing.

4-123. The TTSC (SEP) is authorized an additional 79 secure telephones and 144 nonsecure telephones with appropriate ASIOE to provide service to those organizations who do not provide their own instruments.